DD-10EX

SERVICE MANUAL

US Model
Canadian Model
AEP Model
UK Model

DATA Discman

Model Name Using Similar Mechanism	DD-10
CD Mechanism Name	CDM-DD10

SPECIFICATIONS

Model	Electronic player	
D/A conversion	16-bit linear digital filter	

Laser diode properties

Material	GaAlAs
Wave length	780 nm
Emission duration	Continuous
Laser output	Less than 44.6 μW

(This output is the value measured at a distance of 200 mm from the objective lens surface on the Optical Pick-up Block.)

Output connector

When the power voltage is 6V

VIDEO OUT	Mini jack	
	Maximum output level	1 Vp-p
	Load impedance	75 ohms
PHONES	Stereo mini jack	
	Maximum output level	7 mW + 7 mW
	Load impedance	32 ohms

Power

Power requirements

US, Canadian model : 120 V AC, 60Hz
AEP, UK model : 220-230 V AC, 50Hz
using the supplied Sony AC power adaptor connected to the DC IN 6V jack
4V DC
using the supplied BP-2EX rechargeable battery pack
6V DC
using 4 size AA (LR6) batteries (not supplied)
12 V DC
using the DCC-E160L car battery cord (not supplied)

Power consumption

1.6 W DC (when display light is off)
2.2 W DC (when display light is on)

General

Dimensions	Approximately 110.0 x 35.0 x 157.0mm ($4\ ^3/_8$ x $1\ ^{11}/_{16}$ x $6\ ^3/_8$ in.) (w/h/d)
Weight	Approximately 550 g (1 lb 3 oz) (not including battery)
Supplied accessories	AC power adaptor (1) Rechargeable battery BP-2EX (1) Video connecting cord (1) Headphones (1)

Design and specifications are subject to change without notice.

MICROFILM

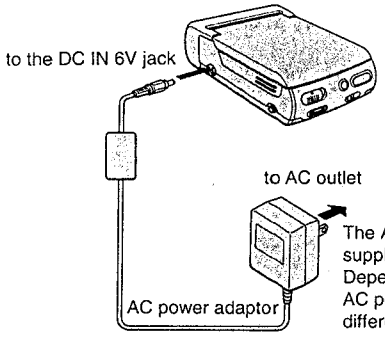
ELECTRONIC BOOK PLAYER

SONY®

The electronic book player works with a number of power sources: AC power (house current), the supplied rechargeable battery pack, regular batteries, and a car battery. The following describes each of them.

AC Power

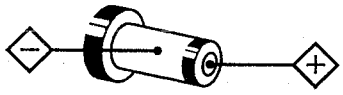
You can use the supplied AC power adaptor to connect the player to an AC outlet (house current). If regular batteries or the rechargeable battery pack is installed, the player will still automatically choose AC power. You may, however, keep the batteries or the rechargeable battery pack inside the battery compartment, just for convenience. The following shows how to connect to an AC outlet.

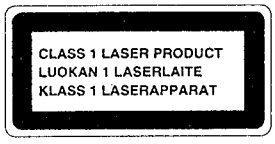


The AC power adaptor shown is supplied with the US model. Depending on the country, your AC power adaptor may be different from the one shown here.

Notes on the AC power adaptor

- When the AC power adaptor is not used, unplug it from the AC outlet.
- Use only the AC power adaptor supplied. Do not use any other AC power adaptor.





This electronic book player is classified as a CLASS 1 LASER product.
The CLASS 1 LASER PRODUCT label is located on the bottom exterior.

For the customers in Canada

This apparatus complies with the Class B limits for radio noise emissions set out in Radio Interference Regulations.

TABLE OF CONTENTS

Section	Title	Page
1. SERVICING NOTES		3
2. GENERAL		11
3. DISASSEMBLY		32
4. ELECTRICAL ADJUSTMENTS		34
5. DIAGRAMS		
5-1.	Block Diagram	37
5-2.	Printed Wiring Boards	42
5-3.	Schematic Diagram	47
5-4.	Semiconductor Lead Layouts	52
5-5.	Waveforms	54
5-6.	IC Descriotions	57
5-7.	IC Block Diagrams	64
6. EXPLODED VIEWS		
6-1.	LCD Section	66
6-2.	Cabinet Section	67
6-3.	Mechanism Section (CDM-DD10)	68
7. ELECTRICAL PARTS LIST		69
HARDWARE LIST		75

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED LINE WITH MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

ATTENTION AU COMPOSANT AYANT RAPPORT À LA SÉCURITÉ!

LES COMPOSANTS IDENTIFIÉS PAR UNE MARQUE ⚠ SUR LES DIAGRAMMES SCHÉMATIQUES ET LA LISTE DES PIÈCES SONT CRITIQUES POUR LA SÉCURITÉ DE FONCTIONNEMENT. NE REMPLACER CES COMPOSANTS QUE PAR DES PIÈCES SONY DONT LES NUMÉROS SONT DONNÉS DANS CE MANUEL OU DANS LES SUPPLÉMENTS PUBLIÉS PAR SONY.

SECTION 1
SERVICING NOTES

CAUTION

Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the equipment manufacturer. Discard used batteries according to manufacturer's instructions.

ADVARSEL!
Lithiumbatteri – Eksplosionsfare ved fejlagtig håndtering.
Udskiftning må kun ske med batteri
af samme fabrikat og type.
Lever det brugte batteri tilbage til leverandøren.

ADVARSEL

Lithiumbatteri – Eksplosjonsfare.
Ved utskifting benyttes kun batteri som
anbefalt av apparatfabrikanten.
Brukt batteri returneres apparatleverandøren.

VARNING

Explosionsfara vid felaktigt batteribyte.
Använd samma batterityp eller en likvärdig
typ som rekommenderas av apparattillverkaren.
Kassera använt batteri enligt gällande
föreskrifter.

VAROITUS

Paristo voi räjähtää, jos se on virheellisesti asennettu.
Vaihda paristo ainoastaan laitevalmistajan suosittelemaan
tyyppiin. Hävitä käytetty paristo valmistajan ohjeiden
mukaisesti.

Flexible Circuit Board Repairing

- Keep the temperature of the soldering iron around 270℃ during repairing.
- Do not touch the soldering iron on the same conductor of the circuit board (within 3 times).
- Be careful not to apply force on the conductor when soldering or unsoldering.

Notes on chip component replacement

- Never reuse a disconnected chip component.
- Notice that the minus side of a tantalum capacitor may be damaged by heat.

NOTES ON HANDLING THE OPTICAL PICK-UP BLOCK OR BASE UNIT

The laser diode in the optical pick-up block may suffer electrostatic breakdown because of the potential difference generated by the charged electrostatic load, etc. on clothing and the human body.
During repair, pay attention to electrostatic breakdown and also use the procedure in the printed matter which is included in the repair parts.
The flexible board is easily damaged and should be handled with care.

Before Replacing the Optical Block

Please be sure to check thoroughly the parameters as for the "Optical Block Checking Procedures" (Part No. : 9-960-027-01) issued separately before replacing the optical block. Note and specifications required to check are given below.

NOTES ON LASER DIODE EMISSION CHECK

The laser beam on this model is concentrated so as to be focused on the disc reflective surface by the objective lens in the optical pick-up block. Therefore, when checking the laser diode emission, observe more than 30cm away from the objective lens.

Laser Diode Check Procedure

The laser diode on this set will not emit unless the top panel is closed and S804 (DOOR OPEN SW) is turned on. The laser diode will always emit even if focus search is not performed in service mode.
The laser diode is checked using the current value which flows to the laser diode inside the optical pick-up block.

Procedure 1 (service mode or normal operation)

Check the laser diode emission with the eye.

1. Open upper panel.
2. S804 on as Fig. 1.
   (In service mode, this operation is not necessary.)
3. Press the ▶II key.
   (In service mode, this operation is not necessary.)
4. Observe the objective lens and confirm that the laser diode is emitting light. At the time, the laser diode goes on about 10 seconds due to focus serarch. If it does not, APC circuit or optical pick-up block defective.

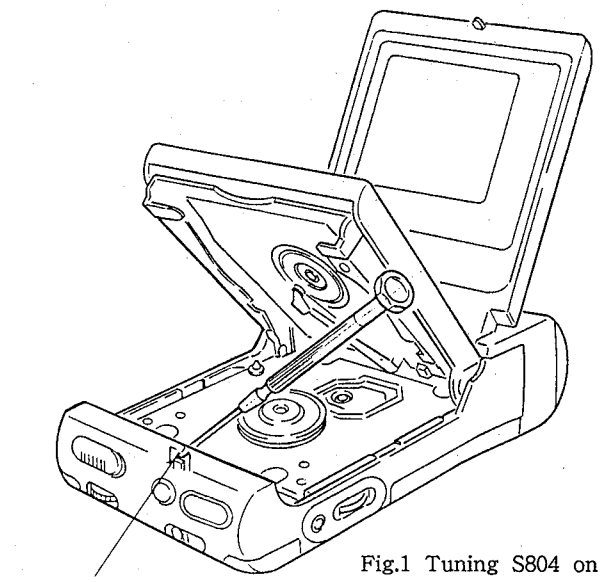
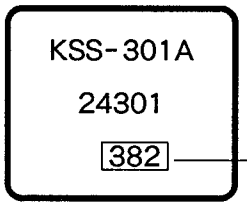


Fig.1 Tuning S804 on

Procedure 2 (service mode or normal operation)

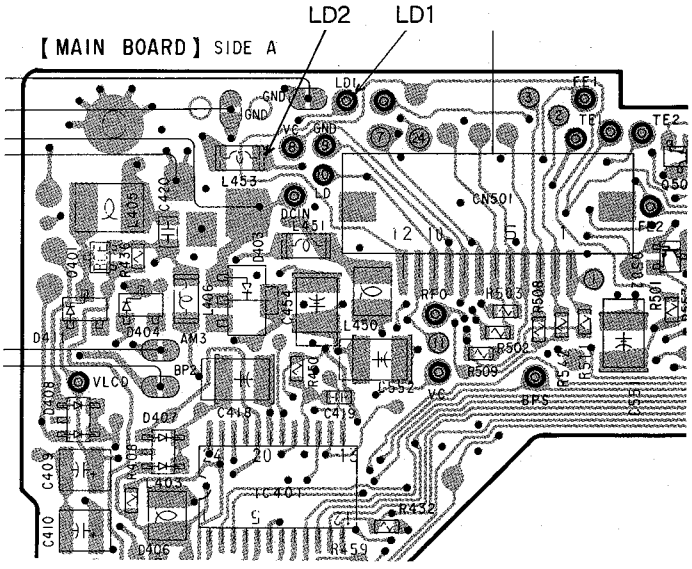
Check by the current with flows in the laser diode.

1. Close the top panel.
2. Remove the main board and read the current value on the label affixed to the optical pick-up block. (Label on optical pick-up block)



   The current value varies with the set.
3. Connect circuit test probe to LD1 and LD2 if the Main board.
4. Press the ▶II key.
5. Calculate the current by the VOM reading.
   VOM reading (V) ÷ 11 = current (A)
   ex. VOM reading = 0.42V
   0.42 ÷ 11 = 0.038 (A) = 38 (mA)
6. Confirm that the ammeter reading is within the range given below.
   value on label $\pm^{5}_{11}$ mA (25℃)
   variation relative to temperature : 0.4mA/℃
   (Current increases when temperature rises and decreases when it drops.)

If the value is more than the range give, APC circuit has been defective or the laser diode has deteriorated.
If it is less, APC circuit or optical pick-up block is defective.



• Test Mode

This set contains a test mode program in a microcomputer as in similar models. The test (service) mode consists of the following five items.

Test Mode	Contents	Mode
LCD check/servo system operation	Normal CD service	F1
Data take-in operation	CD-ROM: Check of the data read-out operation	F2
Keyboard check	Keyboard operation check	F3
Self-diagnosis, commander mode	Check of LSI connection Check of operation (applicable for the electrical adjustment.)	F4
Debug mode	Not applicable for service.	F5

1. Starting the test mode program

Start the test mode program in one of the following procedures.

A. Starting by pressing two or more keys at the same time
Start step (1).

(1) Press the OFF (■) button and set the power to OFF.
(2) Press the POWER ON (▶II) button while pressing simultaneously the "F1", "T" and "M" buttons.
(3) LCD check in the F1 mode is started.

B. Starting by shorting the soldering bridge
Start step (1).

(1) Remove the external power (Power is not supplied to the set.) and short by soldering the service mode tap of the main board.
See the Printed Wiring Boards for the position of the tap. (See page 10.)
(2) Supply the external power.
(3) Press the POWER ON (▶II) button.
(4) LCD check in the F1 mode is started.

The F1 to F4 function keys are always available after the test mode program is started. When a mode is changed or a current mode is specified again, the current mode is interrupted and a new mode is applicable by pressing a function key.

2. Completing the test mode program

Complete the test mode program in one of the following procedures.

(1) Press the reset switch of the bottom side of the set.
(2) Remove the power supply (external power supply DCIN, battery or battery pack).

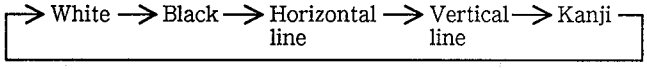
3. Mode and Function

3-1. F1 Mode

LCD dot check, Kanji ROM temporary check and servo system operation check can be conducted in this mode.

<< LCD check >>

LCD display changes five times for three seconds as shown below.



When the X key is pressed, the display is paused. When the Z key is pressed, the pause is released.
When characters are displayed normally without defectiveness in the Kanji display mode, Kanji ROM check is generally OK.(This check can be conducted in the F4 mode.)
Even if the connector is removed and LCD cannot be operated, the other servo system check can be conducted.

<< Servo system operation check >>

Key	Operation
(INPUT MODE)	Moves the optical pick-up lens to the innermost track.
(SHIFT)	Moves the optical pick-up lens to the outermost track.
(YES) (continuous)	Spindle is turned.
(YES) (released)	Spindle is turned reversely.
(▲)	Focus UP
(▼)	Focus DOWN
(◀)	Moves the optical pick-up lens to the inner by track.
(▶)	Moves the optical pick-up lens to the outer by track.
(NO)	All the above operations are released.

Any operation in the F1 mode can maintain in the F2 to F4 modes.

3-2. F2 Mode

Data is specified with an address (absolute time) in the disk of the electronic book, read and displayed in hexadecimal. Read operation of CD-ROM data can be conducted.

The following screen appears in the F2 mode.

Initial Screen

```
F2 : Sample Disk Access          <- Cursor
Manual : 00min 02sec 16blk       <- Input area
Data : Yes : access start
     No  : init access point
     0-9 : manual point set      } Key assignment
   <, >  : cursor move
point  Z : 00min 02sec 16blk
       X : 03min 20sec 35blk
       C : 06min 55sec 74blk
```

Position of the CD-ROM volume descriptor

When an absolute time is set by inputting 0 to 9 in the input area and the YES key is pressed, the eight-byte data is read from the electronic book and displayed in line as the hexadecimal and ASCII code character following to "Data : ".
It is OK when no error occurs and the following screen appears.
Setting values have been already assigned to the Z, X and C keys. When the key is pressed, the specified data can be read in and displayed.
When the "NO" key is pressed, the input area is cleared. A cursor in time setting mode can be moved with the left or right cursor key.

Screen example after the data is read in

When the data is read normally :

```
F2 : Sample Disk Access
Point : 03min 20sec 35blk
Data : 出 <-- "待" is displayed following "Data : " while data is being read and "出" when the data reading is completed.
23 64 1F 11 21 21 1F 10 # d..!!..
23 63 23 6F 23 6C 23 6C # c # 0 # 1 #
1
23 65 23 67 23 65 1F 11 # e # g # e..
21 21 1F 10 23 74 23 68 !!..# t # h
23 72 23 65 23 65 1F 11 # r # e # e..
21 21 1F 10 23 79 23 65 !!..# y # e
```

HEX dump area | Character area

Note : Data of the electronic book CD can be displayed only. No data of the music CD can be displayed. Contents of data are different for the type of the electronic book.

When an error occurs :

```
F2 : Sample Disk Access
Point : 03min 20sec 35blk
Data : NG ! audio track
coad = 81 00 12 00 08 F5 21 01
       2C 00 23 80
```

"NG ! " is displayed following "Data : ".

Contents of the error is displayed.

The above example shows that the data cannot be read because it is the audio data.

Error code is displayed in the dump area.(No details are shown, however.)

Type of Error

Error Message	Contents of Error
invalid address	1. There is no specified address.
failed data	2. Data cannot be processed.
not found	2. Specified address is not detected.
lead out	2. Specified address is in the read-out area.
not read	2. Data cannot be read because of disk scratch.
not disk	3. No disk is inserted.
illegal disk	1. Disk(4-ch audio)which cannot be played back is set.
audio track	4. Data cannot be displayed because it is the audio data.
other mode track	1. Data cannot be read because it is not applicable for MODE 1 or MODE 2.
mode0 track	1. It is unnecessary to display the data which is applicable for MODE 0.
form mismatch	1. Data cannot be displayed because it is applicable for the MODE 2/FORM 2.

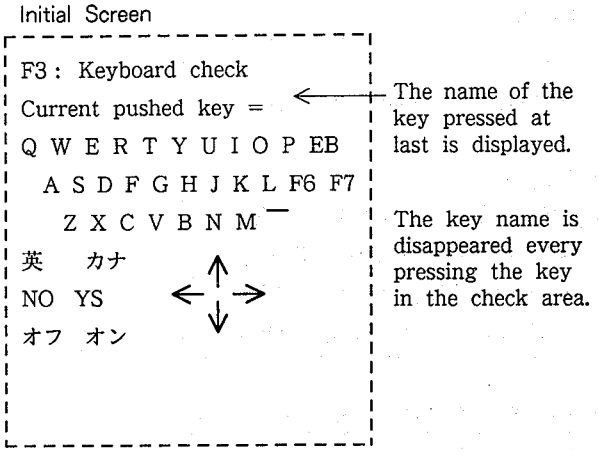
→ Processing display of the normal operation

1: Disk is out of the specification.
2: There are scratch and stain on the disk.
3: Insert the disk.
4: Switch to the audio operation.

3-3. F3 Mode

Contact and connect of the 39 keys can be checked except for the function keys F1 to F5.

The following screen is displayed at the start of the F3 mode.

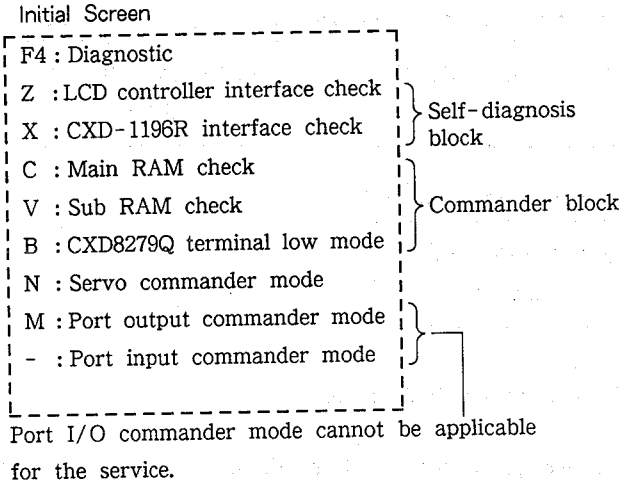

Initial Screen
F3 : Keyboard check
Current pushed key =
Q W E R T Y U I O P EB
A S D F G H J K L F6 F7
Z X C V B N M
英 カナ
NO YS
オフ オン
The name of the key pressed at last is displayed.
The key name is disappeared every pressing the key in the check area.

When a key is pressed, the key name appears and then disappears. When all the keys are pressed except for the function keys and any key name is not displayed, it is a normal.

Check the initial screen of the other test mode for the function keys.

3-4. F4 Mode

Up to eight items of checks can be conducted (Two items of them are not applicable for the service). An item is specified with the keyboard.
The items consists of the two blocks of the self-diagnosis and commander.


Initial Screen
F4 : Diagnostic
Z : LCD controller interface check
X : CXD-1196R interface check
C : Main RAM check
V : Sub RAM check
B : CXD8279Q terminal low mode
N : Servo commander mode
M : Port output commander mode
- : Port input commander mode
Self-diagnosis block
Commander block
Port I/O commander mode cannot be applicable for the service.

When the item key (Z, X, C, V, B and N) is pressed in the above screen, the block is specified.

Z : LCD controller (IC701) interface check

When the "Z" key is pressed, data is written in the display memory (IC702) via the LCD controller (IC701), read to check whether the data is returned normally. When the result is normal, "OK" is displayed. When it is abnormal, "NG" is displayed.

When "NG" is displayed, check the connection among the system controller (IC801), the expansion I/O (IC802) and the LCD controller (IC701) and the connection between the display memory (IC702). Make sure to check IC701 and IC702.

X : CD-ROM decoder (IC602) interface check

When the "X" key is pressed, data is written in the internal register of the CD-ROM decoder (IC602), read to check whether the data is returned normally. When it is normal, "OK" is displayed. When it is abnormal, "NG" is displayed.

When "NG" is displayed, check IC602 or the connection among the system controller (IC801), the expansion I/O (IC802) and the CD-ROM decoder (IC602).

C : Main RAM (IC804) check

When the "C" key is pressed, data (55H) is written in the main RAM (IC804) from the top address (= 8000H). The data is read to check whether the data is written normally. When the data (55H) check is completed and the result is normal, the data is changed to (AAH).

When the check is proceding:

```
MAIN RAM CHECK
チェック中です
```

When the data is abnomal:

```
MAIN RAM CHECK
NGです
```

When the data is normal:

```
MAIN RAM CHECK
OKです
```

V : sub RAM (IC805) check

The method to check and the displayed results are same as the above.

B : Expansion I/O (IC802) terminal LOW mode

When the "B" key is pressed, the terminal specified with the keyboard of the expansion I/O (IC802) can be set to LOW level.

Initial Screen

```
F4 : Diagnostic
B : CXD8279Q terminal low mode
Low level :
terminal key
Q = (40) -ROM    W = (44) -XRST
E = (47) -LDON   R = (58) -<CDAX>
T = (11) -AMUTE  Y = (10) -PEN
U = (60) -CGON   I = (112) -<SPEC>
```

Example of Operation (E key is pressed)

```
F4 : Diagnostic
B : CXD8279Q terminal low mode
Low level : E = (47) -LDON
terminal key
Q = (40) -ROM    W = (44) -XRST
E = (47) -LDON   R = (35) -<CDAX>
T = (11) -AMUTE  Y = (10) -PEN
U = (60) -CGON   I = (53) -<SPEC>
```

Terminal which is currently LOW level

All other than the terminals which are displayed following "LOW LEVEL :" are "H" level.

Key	Pin No.	Function and Use
Q	40	Not used.
W	44	Resets the servo(IC502)and CD digital signal processing(IC601). L: Reset
E	47	Optical pick up laser diode ON/OFF selection
R	35	L: Lit
T	11	Not used.
Y	10	Analog mute control. It is muted with the output of the headphone amplifier(IC302). H: Mute
U	60	De-emphasis control of the headphone amplifier(IC302): ON Battery charging ON/OFF selection. This is a mode used to make a set forcibly to the charging mode for the battery voltage detection adjustment.
I	53	Not used.

N : Direct control output mode for the servo system (IC502 and IC601)

When the "N" key is pressed, command is directly transmitted to the servo system (IC502) and CD digital signal processing block (IC601) and the servo mechanism can be operated manually.
Command must be specified in hexadecimal. Key assignments are applicable for inputting as shown below.

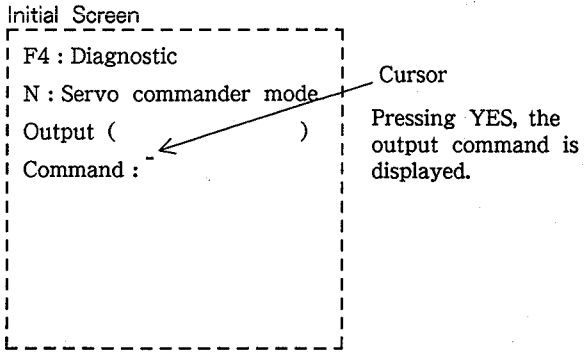
1 2 3 4 5 6 7 8 9 0 ← Input data
Ⓠ Ⓦ Ⓔ Ⓡ Ⓣ Ⓨ Ⓤ Ⓘ Ⓞ Ⓟ ← Key

A B C D E F ← Input data
Ⓐ Ⓢ Ⓓ Ⓕ Ⓖ Ⓗ Ⓙ Ⓚ Ⓛ ← Key

< > : Cursor movement
YES : Commands output
NO : LCD display is initialized as state which is immediately before a key is pressed.

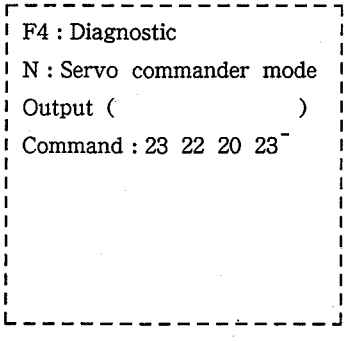
When it is changed to the F4 mode again, all the input commands are reset.

Initial Screen

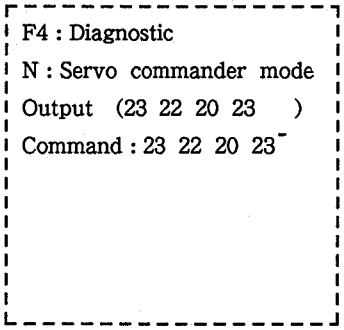


Hexadecimal numbers input with the keyboard are shown. (Max. : Seven bytes)

Example of Commands Input



Example of Command Output



When the YES key is pressed, the commands shown left to the cursor are output. The output data are shown in the upper line. No data which are shown left to the cursor and are less than one byte are output.
Data are remained to be displayed in the command line after the commands are output. Therefore, the data can be changed with the cursor and output again.

Command Example

Servo IC
00 : Focus search ON
02 : Focus search UP
03 : Focus search DOWN
20 : Move (slet) servo OFF
22 : Moves the optical pick up to the external track.
23 : Moves the optical pick up to the internal track.
40 : Auto sequence cancel
47 : Focus pull-in (focus is active automatically)

CD digital signal processing IC
E0 : Spindle STOP
E8 : Spindle turn (kick)
EA : Spindle STOP (brake)
EE : Rough servo (CLV-S)
E6 : Normal PLAY (CLV-A)

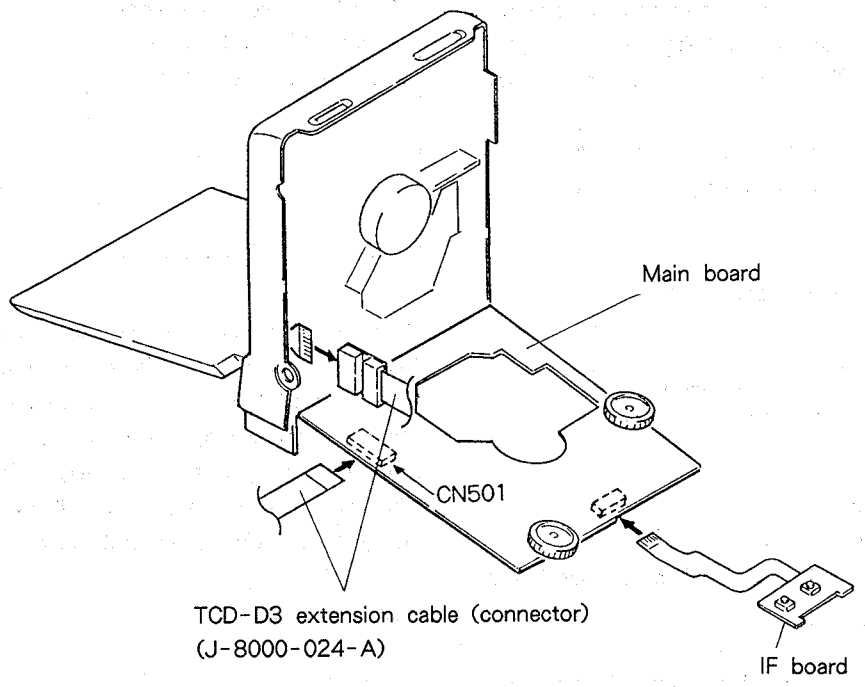
* For the details, see the Specification of CXA-1272R and CXD-2500Q.

• **Connecting the Flexible Board**

Set up the set as the battery section faces the ground.

Connect the extension cable (connector) to the flexible board from the 12-pin connector.

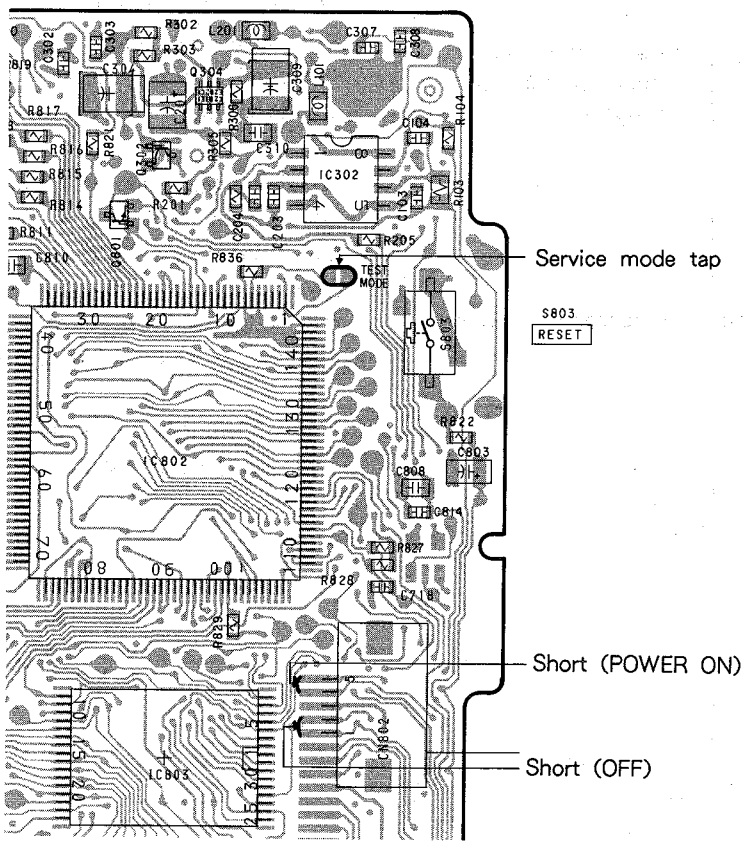
Connect the extension cable (no connector) to the 12-pin connector (CN501).



• **Service Mode Pattern (Inspection without IF Board)**

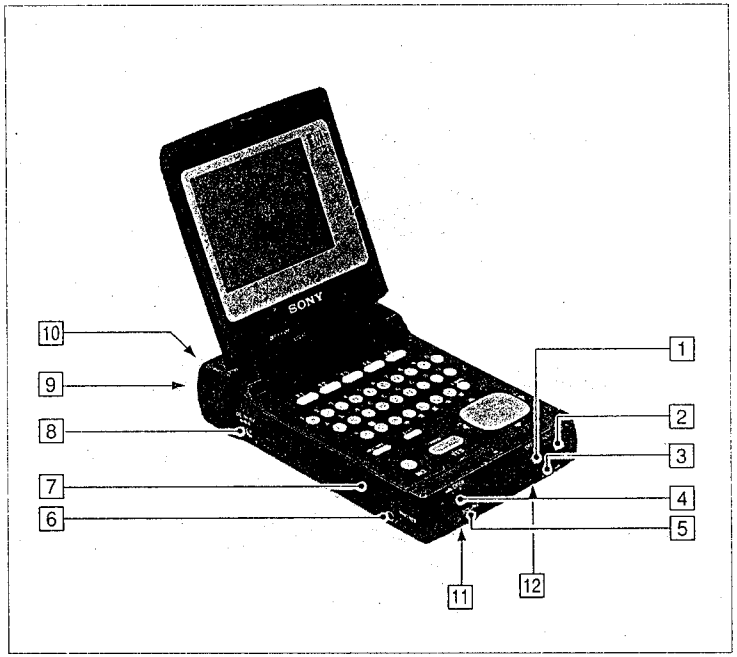
When the IF board (POWER ON/OFF switch) is not used, connect and short directly between the 5-pin connector pins for a moment so that it operates.

(MAIN BOARD) SIDE A

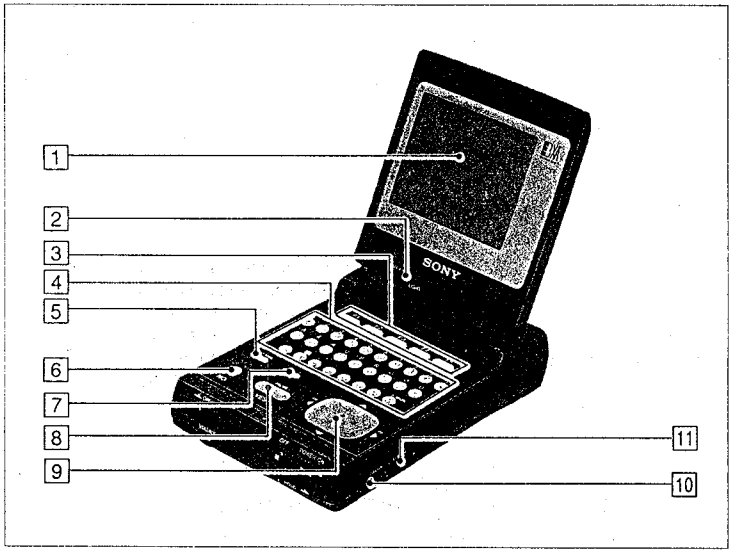


This section is extracted from instruction manual.

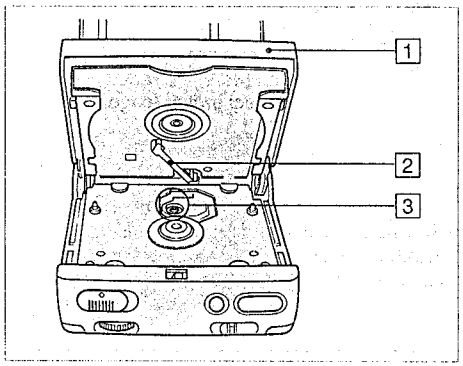
Identifying the Parts



1 ■ (OFF) button (page 30)
2 ▶II (POWER ON) button (page 29)
3 HOLD switch (page 32)
4 OPEN switch (page 26)
5 VOLUME control (page 32)
6 PHONES jack(page 32)
7 Tab (page 26)
8 DC IN 6V jack (pages 15, 22)
9 Battery compartment (page 16)
10 Battery compartment cover (pages 16, 20)
11 Reset switch (page 65)
12 TV select switch (page 23)



1 Display (page 18)
2 LIGHT switch (page 31)
3 Function keys (page 41)
4 Letter and number keys (page 42)
5 INPUT MODE key (page 42)
6 NO key (pages 41, 52, 53)
7 SHIFT key (page 42)
8 YES key (pages 41, 52, 53)
9 ▲▼◀▶ (cursor) key (pages 41, 52, 53)
10 VIDEO OUT jack (page 23)
11 CONTRAST control (page 31)



1 Disc compartment lid (page 26)
2 Shutter opening lever
3 Lens (page 61)

Rechargeable Battery Pack

The rechargeable battery pack (supplied) can operate the DD-10EX up to 1.2 hours on a charge. Before you use it, make sure the AC power adaptor is unplugged from the player and the AC outlet. When the player starts up, it will then use the power from the battery pack.

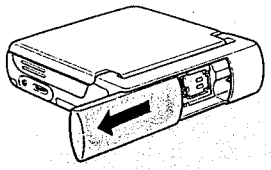
When is recharging required?

A newly bought battery pack must be charged before use. You also need to recharge it when you see the ⌧ mark appearing on the display.

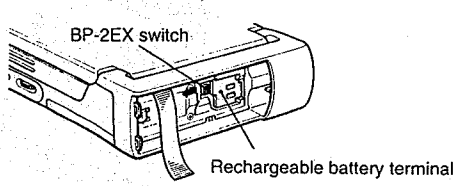
The following describes how to insert and charge the battery pack.

Inserting the battery pack

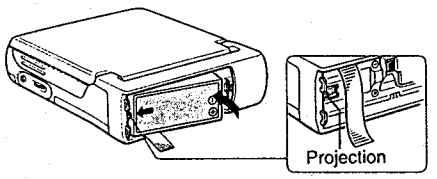
1 Slide to remove the battery compartment cover.



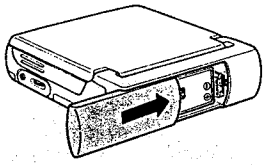
2 Move the BP-2EX switch to the left to flip out the rechargeable battery terminal.



3 Insert the battery pack with the correct polarity. Place the battery pack against the projection in the compartment, then have the terminals end rest against the rechargeable battery terminal.



4 Replace the cover.



Notes on the rechargeable battery pack

- Store the battery pack at a temperature between 5 °C (41 °F) and 35 °C (95 °F) for best performance.
- Keep the battery pack away from fire.
- Do not short-circuit the battery terminals.
- Do not disassemble the battery pack.

Charging the battery pack

You must charge a newly bought battery pack. And, if during the player operation the ⌧ mark appears on the display, turn off the player and recharge the battery pack. Any electronic book or compact disc inside the player can remain there during the charge.
A full charge takes about 3 hours, and can deliver up to 1.2 hours in normal operation or 30 minutes when the display light (page 31) is turned on. To charge, follow the steps below.

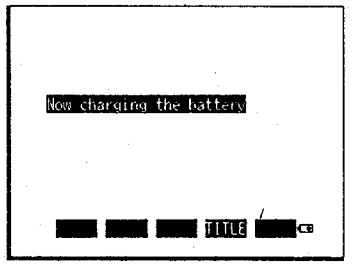
1 Make sure the battery pack is inside the battery compartment.

2 Connect the AC power adaptor (page 15).

3 Press ▶II (POWER ON).

An opening message appears briefly on the display. (If you cannot see anything, read page 31 and adjust the contrast.)

4 When "BATT" appears in the center black box at the bottom of the display, press (F3) (BATT).
"Now charging the battery" appears.



When the charge is completed (about three hours for a full charge), "Charge complete" appears.
To operate the player during the charge, press (NO) or (F4) (TITLE).
To stop the charge, simply unplug the AC power adaptor.

5 Unplug the AC power adaptor.

Notes on charging

- When a fully discharged battery pack is recharged, "Cannot charge the battery" appears, followed shortly by "Now charging the battery." This is not a malfunction.
- Pressing ■ (OFF) or opening the disc compartment lid does not interrupt the charging operation.
- Be sure to use the supplied AC power adaptor for charging the battery pack.
- During a charge, if you unplug the AC power adaptor, the battery charge indication appears, but the amount indicated is only approximate due to the affect of temperature, usage, etc. Therefore, it is best to allow the battery pack to fully charge.

To check the remaining power of a battery pack

1 Unplug the AC power adaptor.

2 Press ▶II (POWER ON).

3 Press (F3) (BATT).

The battery charge indication appears, showing the present level of battery power.

If the battery power drops below a certain level, "The battery is empty" appears.
If the battery pack is completely discharged, then either no message appears or you simply cannot turn on the player.

Battery life

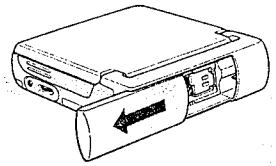
If the battery pack can deliver, after a full charge, for only about half the time it normally could, replace it with a new one.

Regular Batteries

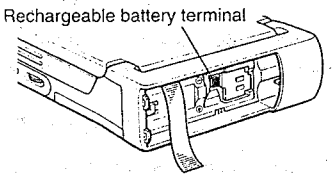
The player can also operate on regular batteries. Four size AA (LR6) batteries (not supplied) are required, and they last for about 3 hours for normal operation, or 1.5 hours if the display light is turned on (page 31).

When the batteries become exhausted, the ⌧ mark appears on the display briefly, and after a while the player turns off. (To check the amount of battery power remaining, see page 19.) When this occurs, you need to replace the batteries, as follows.

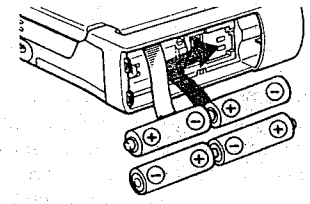
1 Slide to remove the battery compartment cover.



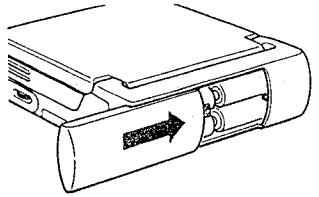
2 If necessary, slide and hold the BP-2EX switch, press down the rechargeable battery terminal, then release the switch to lock the terminal.



3 Insert batteries with the correct polarity.



4 Replace the cover.



Caution

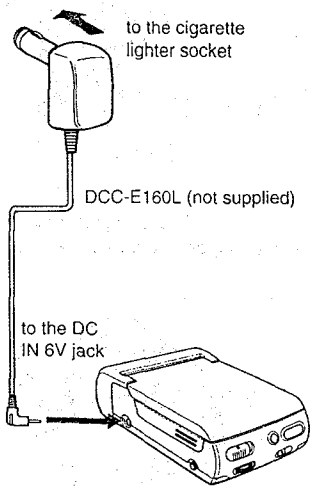
Regular batteries cannot be recharged; therefore, do not attempt to recharge them.

Notes on batteries

- Insert batteries with the correct polarity.
- Avoid mixing old batteries with new ones or different types of batteries.
- When you are not going to use the player for a long time, remove any batteries inside. If a battery leaks, clean the battery compartment and replace all the batteries.

Car Battery

To use the player in your car with power from your car battery, you need the DCC-E160L car battery cord (not supplied). Connect as follows.



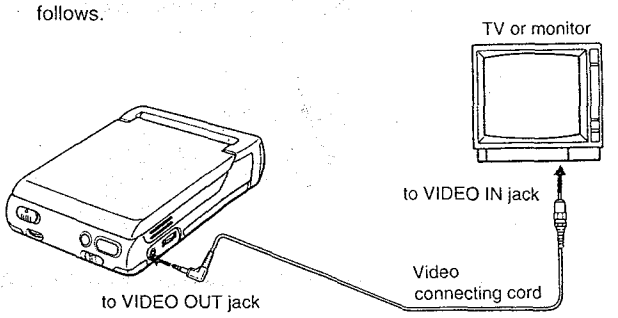
Caution

Disconnect the cord from the cigarette lighter socket when you are not using the player. Otherwise, the car battery may be discharged.

Connecting to Your TV

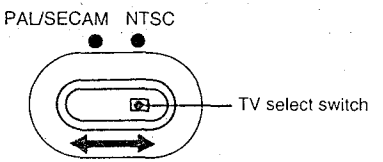
A TV or monitor provides a larger screen for easier "reading" of an electronic book. To connect to it, make sure it comes with a VIDEO IN jack, and follow the steps below.

1 Use the supplied video connecting cord and connect as follows.



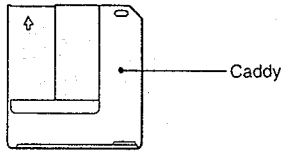
2 Use a pointed device (such as a pen) to set the TV select switch on the bottom of the player, according to the table below.

If the TV or monitor was bought in	Set the TV select switch to
USA/JAPAN	NTSC
Europe	PAL/SECAM



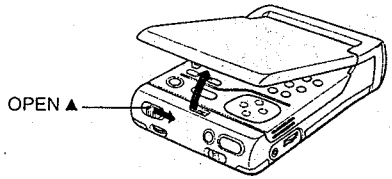
Inserting/Removing an Electronic Book

Each electronic book disc is housed in its caddy for protection against scratches and dust; it can be used while inside the caddy. Therefore, avoid taking out the disc except for maintenance or troubleshooting.

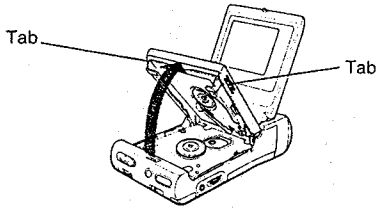


Inserting the Electronic Book

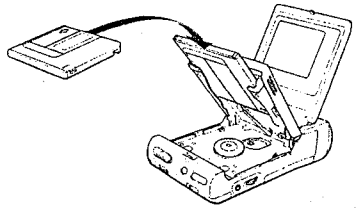
1 Place the player on a level surface. Then, slide the OPEN switch and lift the cover.



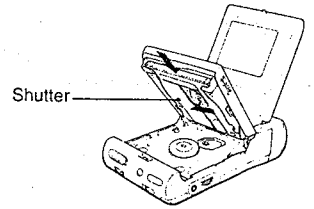
2 While holding the player steady, use the tabs to lift the disc compartment lid fully until it stops.



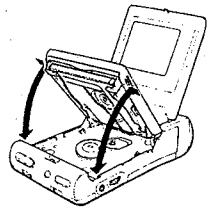
3 Insert the electronic book, label side up, into the slot.



4 Following the "PUSH Electronic Book" indication on the disc compartment lid, push the book all the way down and make sure the shutter is opened as a result.



5 Hold the tabs and gently close the lid.

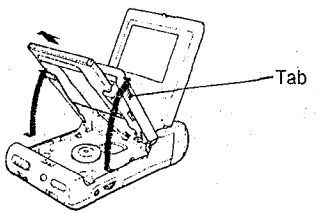


If the disc compartment lid cannot be closed
It may be due to the following reasons:
- The lid was not fully opened when the electronic book was inserted.
- The shutter could not be opened.

To avoid damaging the electronic book inside the player, do not force the lid to close. Instead, see next page to remove the book and try again.

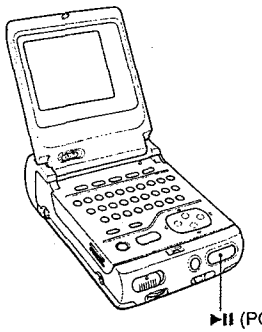
Removing the Electronic Book

Hold the tabs to lift the disc compartment lid; the electronic book inside will pop out. Remove the electronic book.

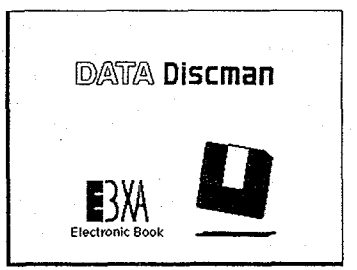


Playing an Electronic Book

To play an electronic book, insert it into the disc compartment lid, then press ▶II (POWER ON) to turn on the player.



An opening message appears briefly, as shown below.



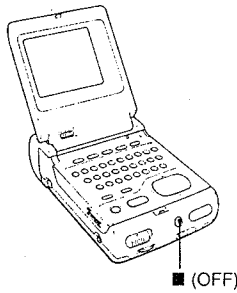
After a while, the title selection menu appears and you can start a search session. For detailed explanation, see the "Searching for Information" chapter starting page 40.

If the player remains idle for 20 minutes
If the player, while operating on regular batteries or the rechargeable battery pack, remains idle for about 20 minutes, it will turn off automatically to save battery power.

Stopping the Player

To stop playing an electronic book, use the steps below.

1 Press ■ (OFF)



2 Remove the electronic book from the player. (For details, see the "Removing the Electronic Book" section on page 28.)

Using the Bookmark

The player has a bookmark function. As with a conventional bookmark, the electronic bookmark lets you mark a place in the electronic book. (See the "Searching for Information" chapter for explanation on searches).

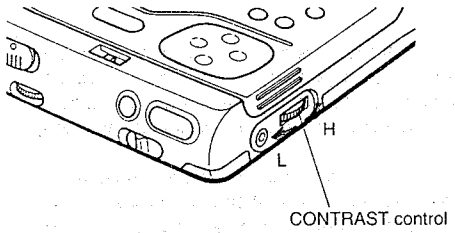
1 When a result is displayed after a search, press ⊖ (B-MARK) to "insert" the bookmark.
The display blanks out.

2 Remove the electronic book inside.

Next time when you insert the same electronic book and press ▶II (POWER ON), the search result will appear again. If, however, you insert a different electronic book, the bookmark will be lost.

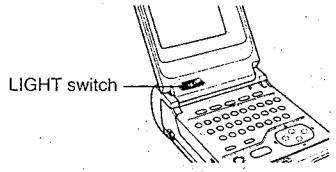
Adjusting the Contrast

If the contrast on the display is not satisfactory, use the CONTRAST control to adjust it. Moving the control toward H increases the contrast, whereas moving it toward L decreases the contrast.



Turning on the Display Light

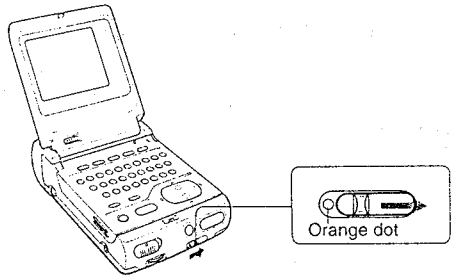
If you want to make the display brighter and thus easier to read, you can turn on the display light. Setting the LIGHT switch to ON turns on the light, whereas setting the switch to OFF turns it off. When the display light is on, however, more battery (regular or rechargeable) power will be used.



Locking the Controls

The HOLD switch locks the ▶II (POWER ON) and ■ (OFF) buttons so that they cannot function. This feature is useful when, for example, you are transporting the player or listening to a compact disc in an unstable environment.

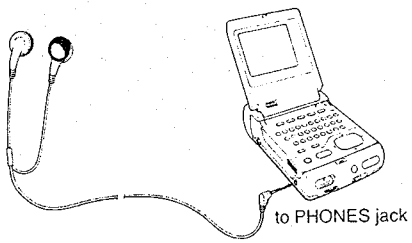
To lock, slide the HOLD switch to the right so that the orange dot can be seen.



Listening to Sound

You can use the supplied headphones to listen to a compact disc, or the audio information (if included) in an electronic book. See the "Playing a Regular Compact Disc" and "Listening to Audio Information" sections for details.

Before you listen to the sound, plug the headphones into the PHONES jack and try to set the VOLUME control to a low level. Then increase it to a higher, more comfortable level when you are listening.

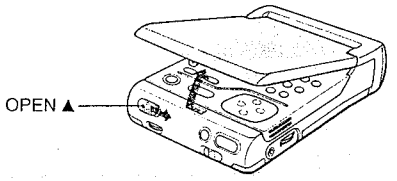


Playing a Regular Compact Disc

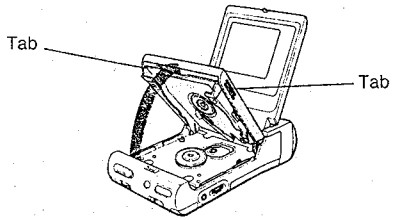
This player can also double as a CD player and play regular 8-cm (3 inch) compact discs.

Caution
Remove the electronic book (if any) from the disc compartment lid, before inserting a regular compact disc.

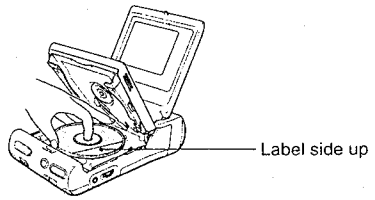
1 Place the player on a level surface. Then, slide the OPEN switch and lift the cover.



2 While holding the player steady, use its tabs to lift the disc compartment lid fully until it stops. Remove any electronic book inside the slot.



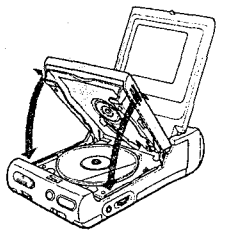
3 Place a compact disc, label side up, on the rotation device of the player.



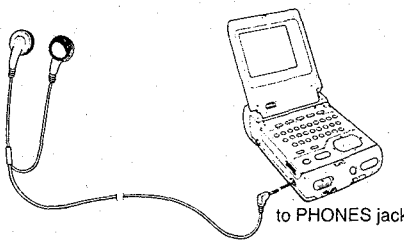
(Continued)

Playing a Regular Compact Disc

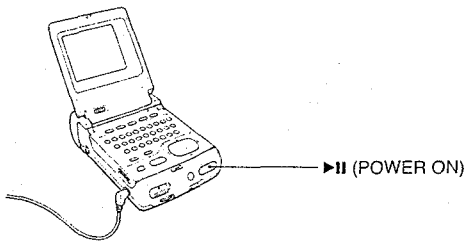
4 Hold the tabs and gently close the lid.



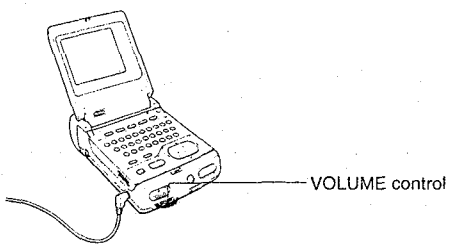
5 Plug the headphones into the PHONES jack.



6 Press ▶II (POWER ON)



7 Adjust the volume with the VOLUME control.



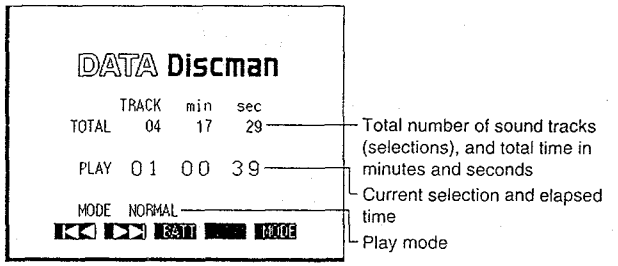
To stop the player
Press ■ (OFF).

To pause
Press ▶II (POWER ON).
"PAUSE" appears.

To resume
Press ▶II (POWER ON) again.

Reading the Disc Information

While a disc is being played, information about the disc (as shown below) appears on the display. You can use this information to help you search for a desired selection or a desired point, or change the play mode.



Locating a Desired Selection

When you are playing a compact disc, you can use the following function keys, together with the disc information on the display, to move to a desired selection.

To move to	Action
Beginning of the current selection or previous selection	Press F1 (⏮). The player moves first to the beginning of the current selection. Thereafter, with each press of F1 (⏮), the player will move backward by one selection.
Next selection	Press F2 (⏯). With each press of F2 (⏯), the player will move forward by one selection.

Locating a Desired Point

Instead of a very short press, if you press and hold the F1 (⏮) or F2 (⏯) for more than 1 second, their functions change so that you can fast forward or fast rewind the player, thus allowing you to locate a point within a selection.

To	Action
Fast forward	Press and hold F2 (⏯). Read the disc information displayed. When you find the desired point, release the function key.
Fast rewind	Press and hold F1 (⏮). Read the disc information displayed. When you find the desired point, release the function key.

Using the Various Play Modes

Four play modes are available, and pressing F5 continuously changes the mode as follows:

NORMAL→1 REPEAT→ALL REPEAT→SHUFFLE REPEAT

where:

NORMAL	– normal mode
1 REPEAT	– repeat a single selection
ALL REPEAT	– repeat all selections
SHUFFLE REPEAT	– repeat all selections in random order

What Kind of Search Can You Do?

With the player, you can search for entries in your electronic book using the methods described below.

Searching for a Word (Word Search and Endword Search)

You can search for a word by entering its beginning letters or final letters.

Searching for an Entry with Keywords (Keyword Search)

You can search for an entry that applies to all of the keywords you have entered.

Searching for Topics from a Menu (Menu Search)

You can search for topics from an online menu that is similar to the table of contents in a conventional book.

Searching for an Entry That Meets Certain Conditions (Multi-Search)

You can search for an entry in an electronic book that meets a number of conditions.

Searching for an Entry Graphically (Graphic Search)

You can search for entries with the aid of graphic symbols.

Cross-refer to an entry

You can cross-refer to the related entries, pictures, or sound while viewing a certain entry. The cross reference mark (=>) is inserted into the electronic book by the publisher.

Note
Each electronic book supports different methods to search for entries. Refer to the manual supplied with each electronic book.

Using the Keyboard

This section explains the use of the keyboard. Use the cursor key to move around the display or make menu choices with the pointer.
Use the function keys to perform the functions listed below.

Moving the cursor or pointer

To move up	▲
To move down	▼

Undoing an action

To return to the previous screen	(NO)
To re-enter an item	(F3)(RETRY)

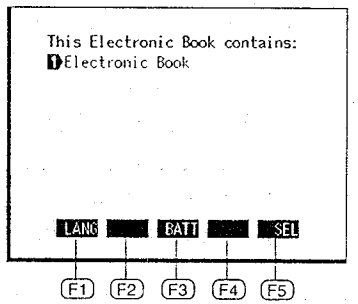
Finalizing an action

To select an item	(F5) (SEL) or (YES)
To start a search	(F5) (ENTER) or (YES)

Choosing from a list
When a list of choices is displayed, select the desired choice with the ▼▲ key and press (YES).
If the list is more than one page long, (F1) (PGUP) and (F2) (PGDN) can be used.
A choice can also be made directly by pressing the indicated number key.

Using the Function Keys

The functions shown in the black boxes at the bottom of the display correspond to (F1), (F2), (F3), (F4) and (F5). These keys function only when you see the names of the functions, such as "ESC", "ENTER", etc. displayed in the black boxes.



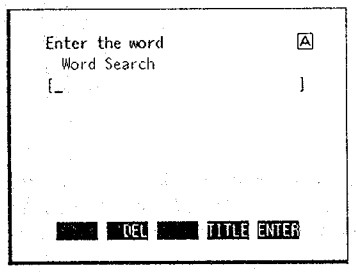
Entering Letters and Numbers

You can choose letters and numbers to enter information on the display.

To enter letters
Make sure that the indication at the top of the screen shows [A].

To enter numbers
Make sure that the indication at the top of the screen shows [1].

To change to [A] or [1]
Press (INPUT MODE).



Entering a Letter with an Accent Mark

Press (SHIFT), then press the key with the accent mark.

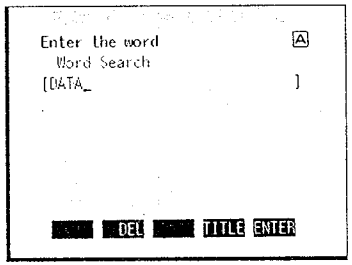
Note on (SHIFT)
Make sure that the indication shows [sh] after you press (SHIFT).
Press (SHIFT) every time you enter a letter with an accent mark.

Correcting Letters and Numbers

You can correct letters and numbers you have entered in the display.

To erase all the letter and numbers on a line
Press (F2) (DEL).

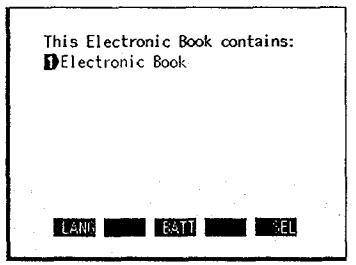
To erase a letter or a number to the left of the cursor
Press ◄.



If you are using Multi-Search or Keyword Search, to erase all entries:
Press (F3) (CLEAR).

Choosing an Electronic Book Title

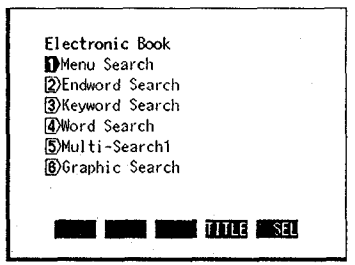
After you have inserted an electronic book and turn on the player, the opening message appears briefly and then changes to the title selection menu. From here, you can select a title and start a search session.
A single electronic book can contain up to 8 separate titles (volumes). Choose the title to open (like opening a book) from the menu. Below is an example.



If the electronic book contains only one title, the title selection menu will appear only briefly, then automatically change to the search method menu.

Selecting a Search Method

An electronic book title is published with one or more of the standard search methods. After you have selected a title, the search method menu appears. Select a desired method to do your search.



If the electonic book contains only one search method, the search method menu will appear only briefly, then automatically change to the search definition screen.

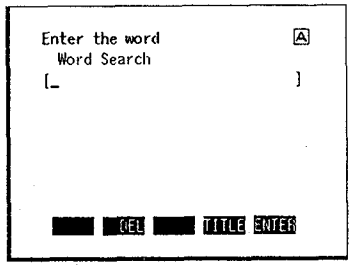
Note
There may be up to 5 different Multi-Searches, each with different search conditions.

Entering Search Conditions

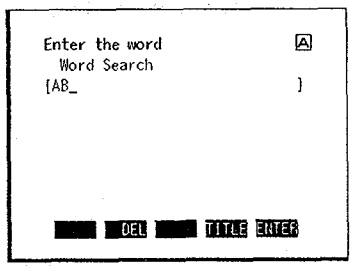
Each search method has a standard screen, called the search definition screen, where you define the search conditions. The following describes each of them.

Word Search

The Word Search is used to find all words that begin with the entered letters. Below is the search definition screen for Word Search.

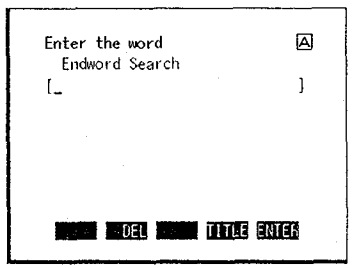


Use the keyboard to type in a word. For example, by pressing Ⓐ and Ⓑ you can search for all words which begin with the letters AB.



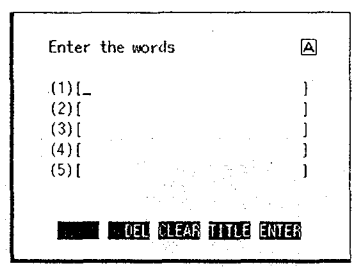
Endword Search

The Endword Search is used to find all words that end with the entered letters. Below is the search definition screen for Endword Search.



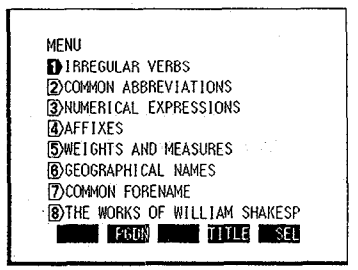
Keyword Search

The Keyword Search can search for all entries that contain from one to five desired keywords. Enter as many keywords as desired. Below is the search definition screen for Keyword Search.



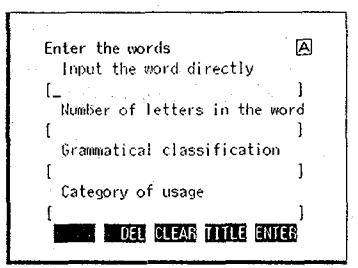
Menu Search

With the Menu Search you can select from a list of categories, sub-categories, etc. Below is a representative search definition screen for Menu Search. The Menu Search on your purchased electronic book will be different.



Multi-Search

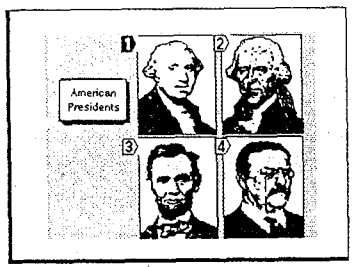
Multi-Search is used to search for information by specifying a set of conditions. An electronic book title may contain as many as 5 different Multi-Searches. Below is a representative search definition screen for Multi-Search. The Multi-Search on your purchased electronic book will be different.



Multi-Search questions can be answered by typing an answer directly, or when the F1 label show "REF" by choosing from a reference list of answers.

Graphic Search

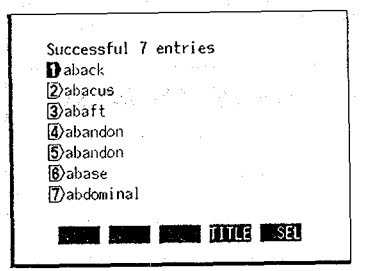
Graphic Search uses pictures and graphic symbols to find information. Below is a representative search definition screen for Graphic Search. The Graphic Search on your purchased electronic book will be different.



Starting the Search

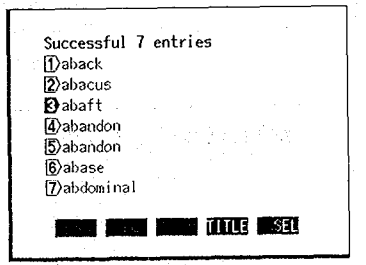
After entering the search conditions, press (YES) to start searching. After a while, a list of matched entries appears (or a message indicating no match was found).

As an example, a Word Search for all entries which begin AB could result in 7 entries as shown below.

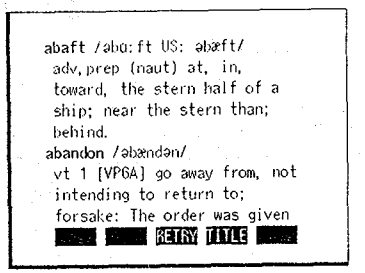


Note
Pressing (NO) during a search will stop the search process.

Move the cursor to a desired entry, "abaft" for example. (Or press ③ for direct selection.)



and press (YES) to see the results.



Viewing the Search Results

Viewing Text

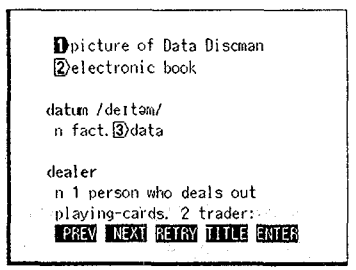
This player can display 9 lines (30 characters each) of text on its screen. The bottom row of the screen shows a set of five function keys which correspond to (F1) to (F5) .

You can use the following keys to navigate in a text screen.

Key	Action
▲ ▼	Scroll backwards one line. Scroll forward one line.
◄ ►	Scroll backwards one page. Scroll forward one page.
⏫ ⏬	Move to the previous entry in the text. Move to the next entry in the text. **Note** These functions may not be active on all publishers' electronic books.
⏮	Return to the initial screen of the search result.
⏫ ⏬	Scroll backwards continuously. Scroll forward continuously. **Note** There are three Autoscroll speeds, which will change each time the key is pressed. To stop Autoscroll press (NO).
(F3) (RETRY)	Return to the search definition screen.
(F4) (TITLE)	Return to the title selection menu.

Using Cross Reference Links

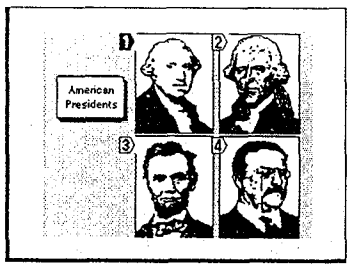
An electronic book can contain cross reference links to related text, pictures, or sound tracks. A cross reference link is indicated as shown here.



Use ▲, ▼, (F1) (PREV), or (F2) (NEXT) to move to a desired link, and press (YES) to see the linked information. For fast selection, you can also directly enter the number of the desired link (In this example, that means pressing ①, ②, or ③.)

Viewing Graphical Pictures

A single picture can have up to 9 cross references to other pictures, to text, or to sound tracks.



You can use the following keys to navigate in a graphical picture.

Key	Action
▲ ▼	Select a cross reference.
(YES)	Jump forward to the selected cross reference.
(NO)	Jump backwards to the previous data.
① – ⑨	Jump to the indicated cross reference.
(F3) (RETRY)	Return to the search definition screen.
(F4) (TITLE)	Return to the title selection menu.

Handling Automatic Sequence of Pictures

Some electronic books contain an automatic sequence of pictures, just like a cartoon. The graphic screen changes based upon a preset time delay, or according to a sound track.

During an automatic sequence the following keys can be used.

Key	Action
(NO)	Stop the automatic sequence. **Note** Holding down (NO) will automatically back up through the sequence.
(F1)	Move to the previous screen.
(F2)	Move to the next screen.

Listening to Audio Information

An electronic book with the mark can contain sound tracks accessible from a cross reference link.

During the playback of audio information, the following keys can be used.

Key	Action
►	Fast forward
◄	Fast rewind
(YES)	Pause, press again to resume play
(NO)	Stop the playback

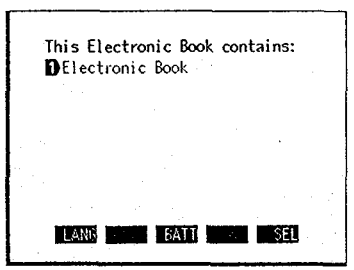
Changing the Search Control Language

You can easily change the language of the search control commands that appear on the screen.

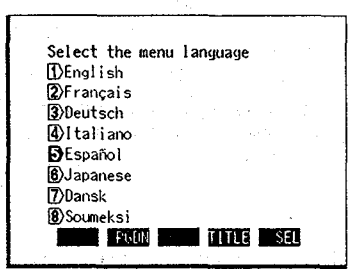
This function is only good for electronic books that have the search control language select function. The language of the text on the book is determined by the publishers.

The example below shows how to change the language to Spanish.

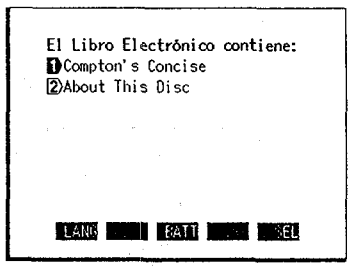
1 At the title selection menu, press (F1) (LANG) or ①.



2 Move to "Español" and press (YES) or (F5) (SEL). (Or press ⑤ for direct selection.)



The language changes to Spanish.



Note

The language you can convert to are different depending on the electronic book. Be sure to inquire about this function before purchasing an electronic book.

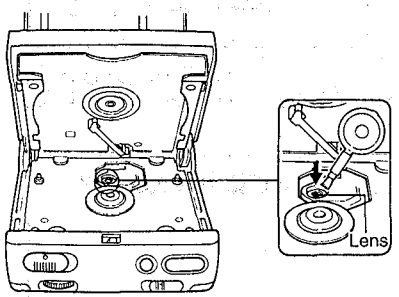
Maintenance

This section explains how to keep the player, electronic books and compact discs in good condition.

Electronic Book Player

Cleaning the casing
Clean the casing with a soft cloth slightly moistened with water or a mild detergent solution. Do not use any type of abrasive pad, scouring powder or solvent such as alcohol or benzine as they may damage the finish of the casing.

Cleaning the lens
If you accidentally touch the lens with dirty fingers or if dust on the lens prevents the player from operating properly, open the disc compartment lid and clean the lens with the lens cleaning kit (not supplied).

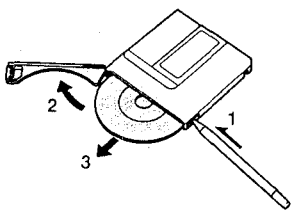


Cleaning the headphones plug
Keep the headphones plug clean to obtain optimum sound. Wipe the plug with a dry, soft cloth.

Electronic Books and Regular Compact Discs

Each electronic book disc is housed in a caddy for protection against scratches and dust. Therefore, avoid taking out the disc except for maintenance or troubleshooting.

Dust accumulation on an electronic book disc may render reading the book contents impossible. If this happens, remove the disc from its caddy and clean it, as shown below.

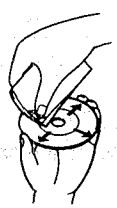


1 Use a pen (or similar object). Insert it into the slot marked "OPEN" and gently slide it to open the cover.

2 Open the cover fully.

3 Hold the disc by its edge and take it out.

4 Clean the disc from the center out, using a clean soft cloth.



5 Insert the disc back into its caddy. Make sure the label sides of the disc and the caddy are facing the same direction.

A regular compact disc can be cleaned in a similar way.

Caution
For cleaning, do not use solvents such as benzine, thinner, commercially available cleaners or anti-static spray intended for use with records.

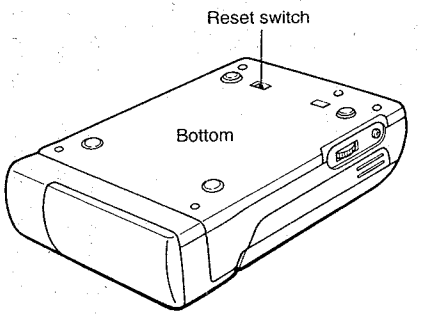
If an Error Message Appears

If any error message appears, refer to the following table.

Error Message	Cause/Solution	Reference page
Cannot charge the battery	• The rechargeable battery pack is not installed. →Install the rechargeable battery pack. • The rechargeable battery pack is completely discharged. →Wait for the message "Now charging the battery" to appear.	16 19
Cannot read the disc **• Re-insert the disc** **• Clean the disc**	• The electronic book disc or compact disc is dirty. →Clean the electronic book disc or compact disc. • The electronic book or compact disc is not inserted correctly. →Re-insert the electronic book or compact disc correctly.	62 26, 33
Please insert the disc	• No electronic book is inserted into the player. →Insert an electronic book. • The electronic book disc is upside down. →Insert the disc with the label side up.	26 62
The battery is empty	• The rechargeable battery pack or batteries are discharged. →Recharge the battery pack or replace the batteries.	18, 20
The disc inserted is not an EB	• The format of the disc is inappropriate. →Use an electronic book that has the electronic book mark.	9

If the Player Does Not Operate

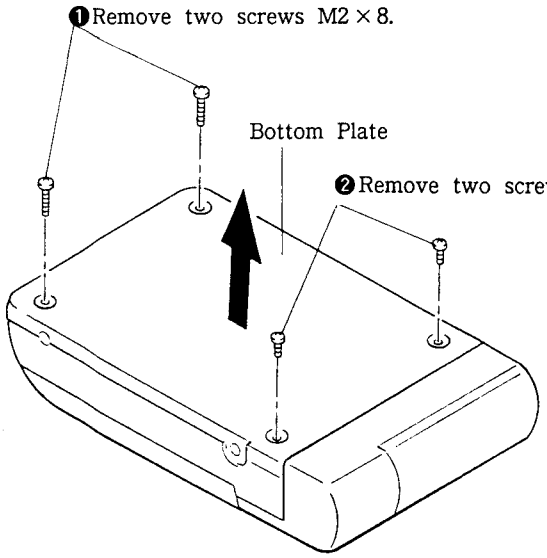
If the player does not operate while being used, reset it by pressing the reset switch with a pointed device (such as the tip of a ballpoint pen). This turns off the player, so that you can start over again.



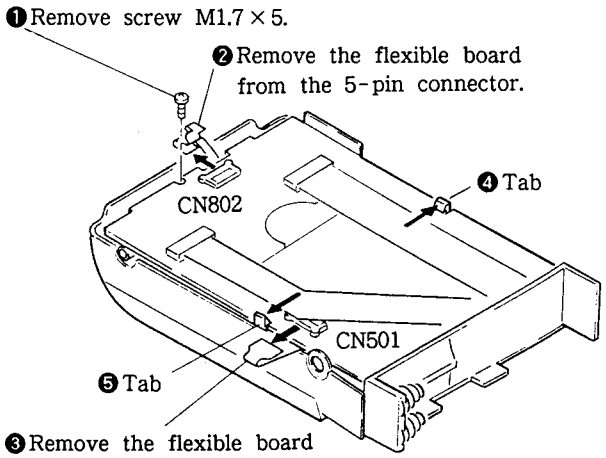
SECTION 3
DISASSEMBLY

NOTE : Follow the disassembly procedure in the numerical order given.

[Bottom Plate]



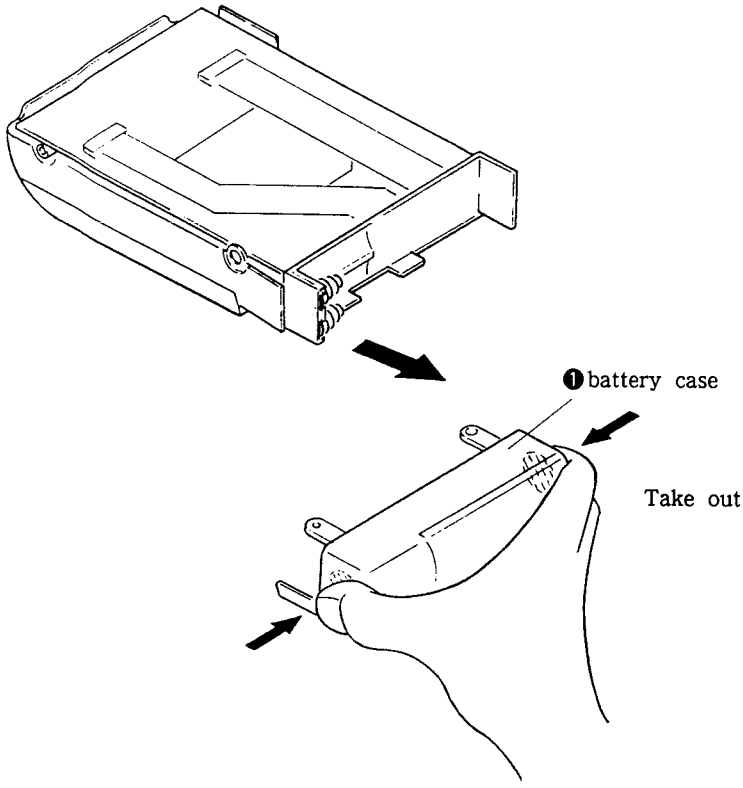
[Main Board]



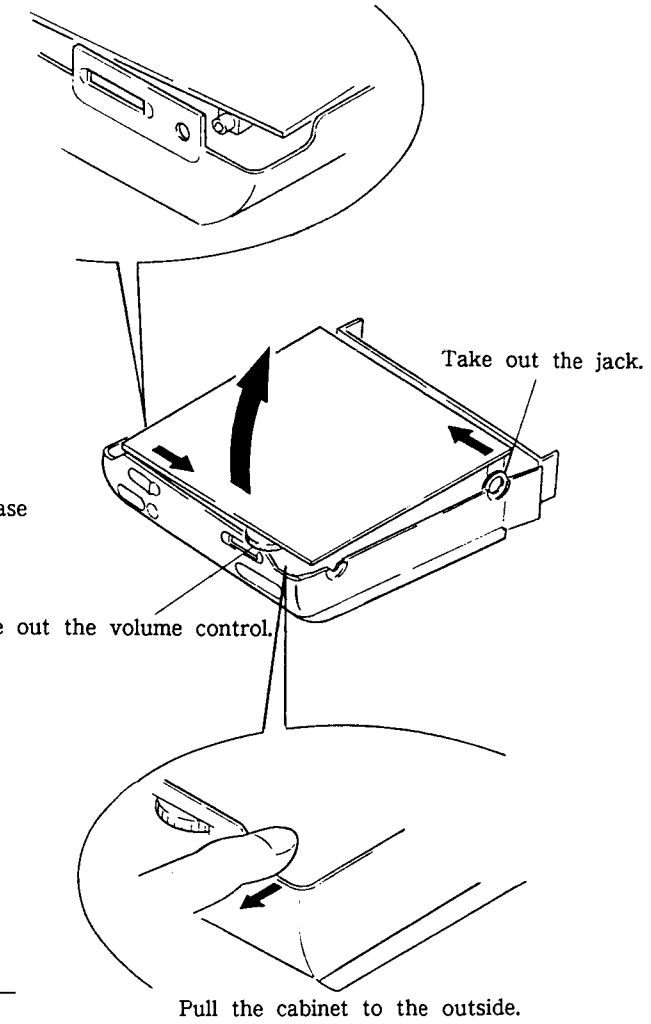
(Remove the volume control and jack through the case hole while checking that the board is not bent.)

[Battery Case]

Hold and press the both sides of battery case ❶ in the direction of the arrow and pull out.

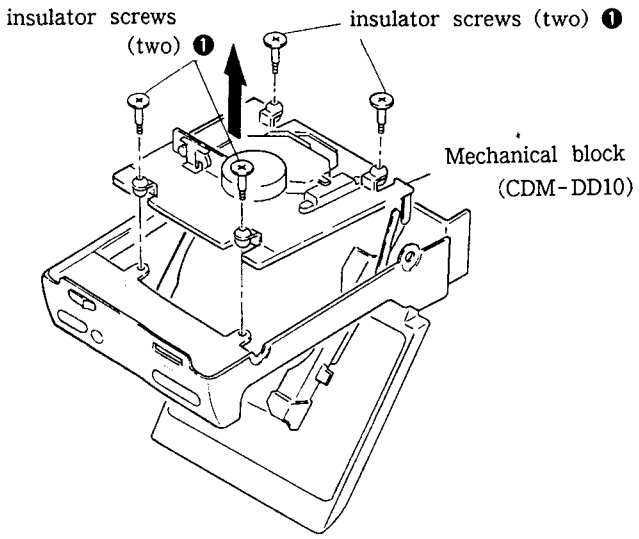


Slightly turn the board counterclockwise.

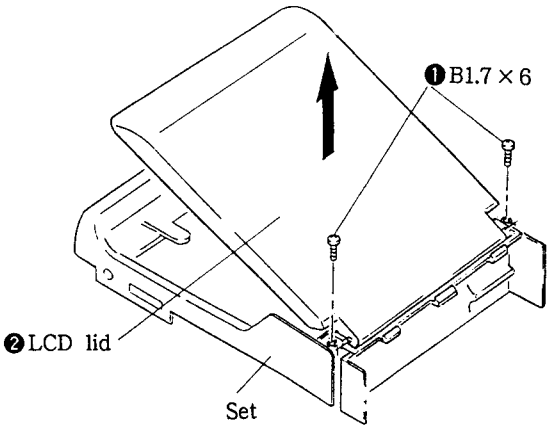


[Mechanical Block]

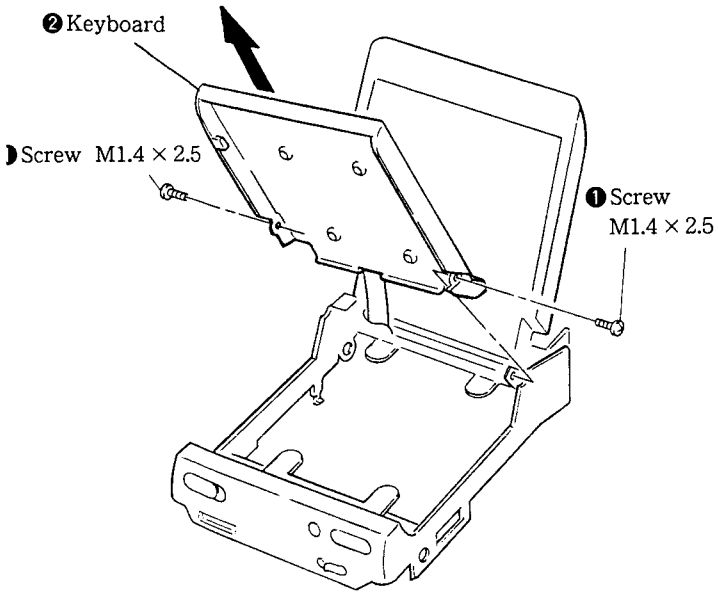
Mechanical block (CDM-DD10)

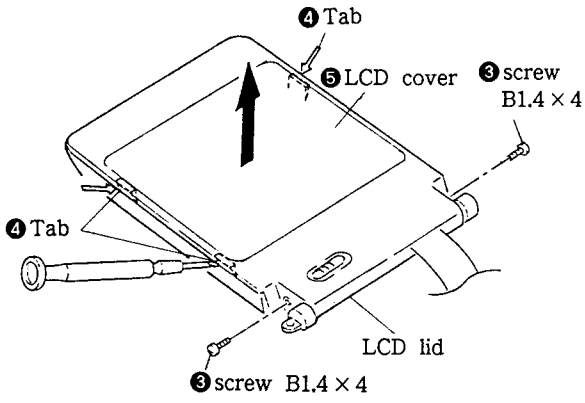


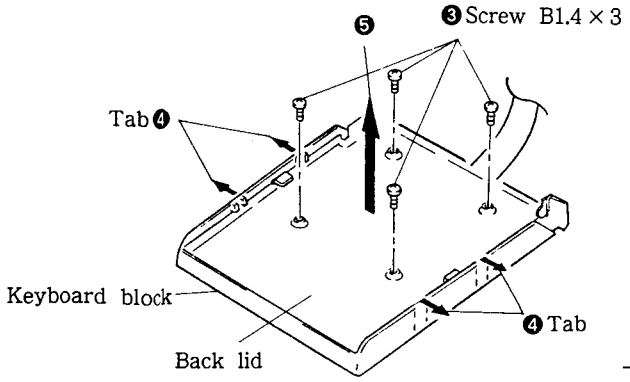
[LCD Panel]



[Keyboard Block]







SECTION 4
ELECTRICAL ADJUSTMENTS

Notes on Adjustment

1. Perform the adjustment in the order given.
2. Use a commercial disc.
3. Power supply voltage : DC 6 V
   Hold switch : OFF

Preparation

Put the equipment into the service mode and perform the following check (see page 4). The mode should be set to F1. If a failure occurs, repair it.

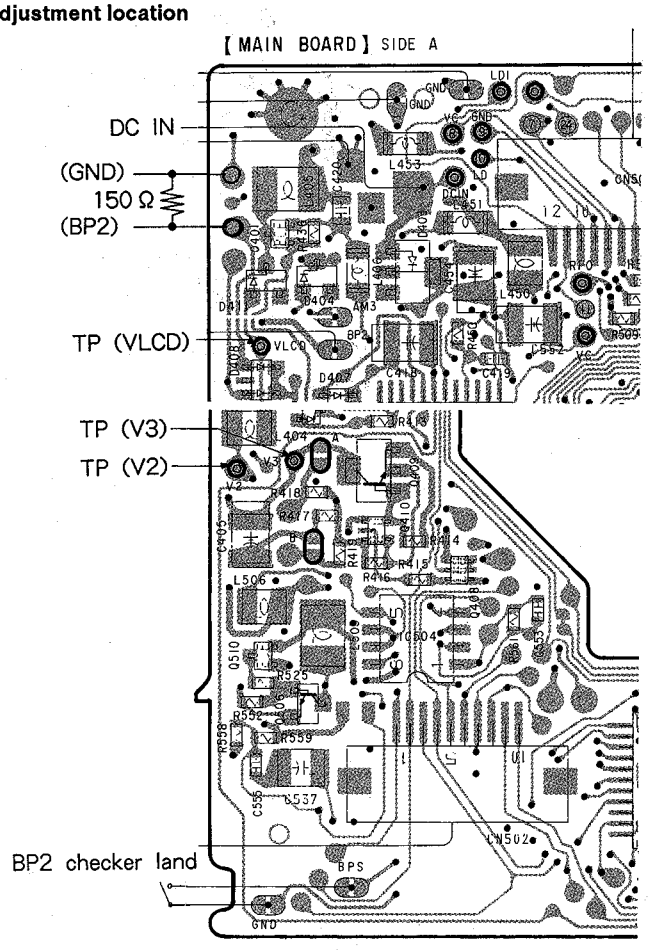
• Sled Motor Check

1. Open the top panel
2. Press the "INPUT MODE" AND "SHIFT" keys, and check that the optical block moves smoothly, without catching, from the innermost→outmost→innermost track.
   "SHIFT" : Optical pick-up block moves outward.
   "INPUT MODE" : Optical pick-up moves inward.

• Focus Check

1. Select the F2 test mode.
2. Open the top panel.
3. Press the (Z) key (perform the focus search continuously).
4. Observe the optical pick-up block object lens and check that it moves smoothly in vertical direction with no catching, noises, etc.

Adjustment location



Power Supply Voltage and Charging Supply Voltage Adjustment

1. Apply DC 6 V to the DCIN jack from the constant voltage power supply.

< Logic IC system voltage adjustment >.

2. Adjust RV402 so that TP (V2) is 3.5 V ± 50 mV .

< Negative voltage adjustment >.

3. Insert the video plug to the video jack.
4. Adjust RV403 so that TP (VLCD) is −21.5 V.

< Charging voltage adjustment >

Note) Press the F4 key and press (M) key in the initial picture. Then, press the [1], [2], [8], [0] and [YES] keys.

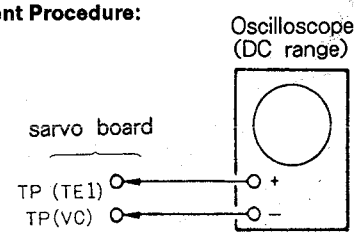
5. Adjust RV401 so that 5.2 V is obtained across 150 Ω load inserted BP 2 input pin.
   Adjustment location : Main board (see page 35).
   Measurement point : Main board (see the figure below).

Tracking Balance Adjustment

Conditions:

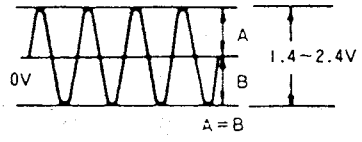
The equipment should be placed horizontally.

Adjustment Procedure:



1. Set the test disk, and press POWER ON.
2. Adjust RV501 so that the center of the traverse waveform is 0 V.
3. Confirm that the peak value of the traverse waveform is within the range of the specification.

• Traverse Waveform



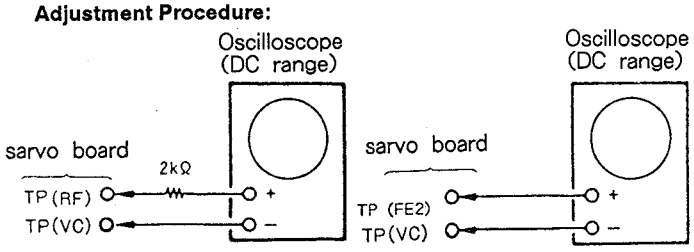
Adjustment location : Main board (see page 35).

Focus Bias Adjustment

Conditions:

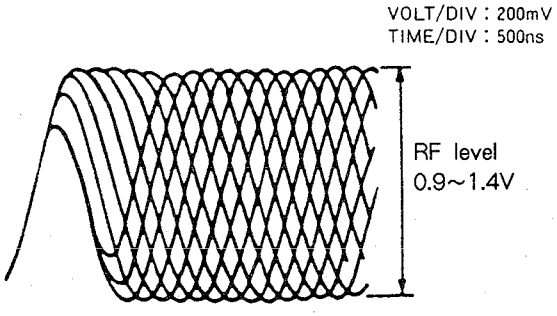
The set should be placed horizontally.

Adjustment Procedure:



1. Set the test disk and press POWER ON.
2. Adjust RV502 so that the eye pattern becomes clearly visible (diamond shape (◇) in the center of the waveform can be distinguished clearly).
3. The RF level is within the range of the specification.
4. Connect an oscilloscope to TP (FE2). And adjust RV502 so that TP (FE2) is 0 mV when less than 45 mV, or 70 mV when more than 45 mV.

• RF Signal Waveform (eye pattern)



When observing the eye pattern, set the oscilloscope in the AC range and raise the vertical sensitivity.

Adjustment location : Main board (see the diagram below)

Reference

Focus/Tracking Gain Adjustment

A frequency response analyzer or CD jig is necessary in order to perform this adjustment exactly.

> However, this gain has a margin, so even if it is slightly off, there is no problem. Therefore, do not perfrom this adjustment.

Focus / tracking gain determines the pick-up followup (vertical and horizontal) relative to mechanical shock when the 2-axis device operate.

However, as these reciprocate, the adjustment is at the point where both are satisfied.

- When gain is high, the noise when the 2-axis device operates increases.
- When gain is low, it is more susceptible to mechanical shock and skipping occurs more easily.

This adjustment is to be performed when replacing the following parts :

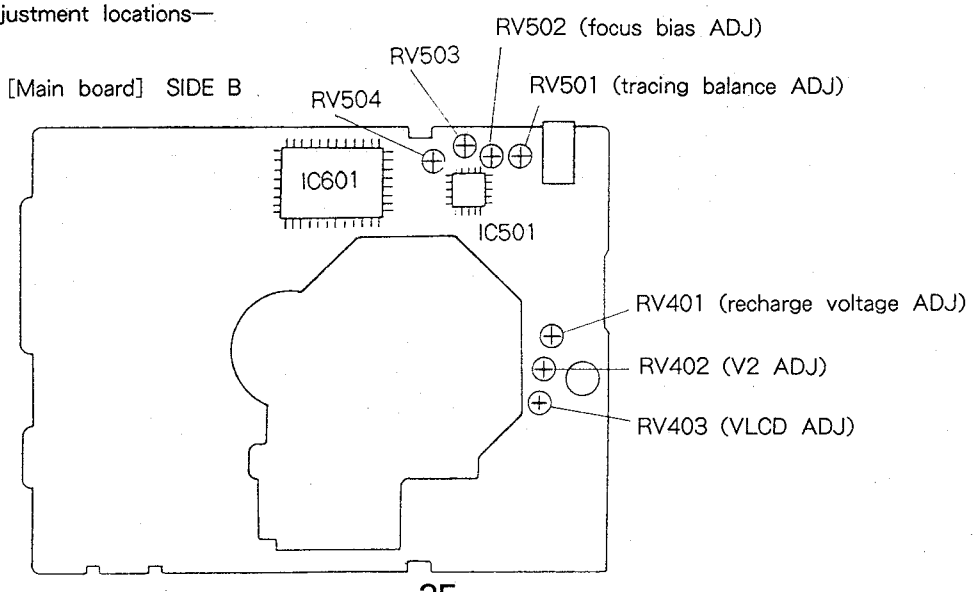
- Optical pick-up block
- RV503 (focus gain volume)
- RV504 (tracking gain volume)

Adjustment location : Main board – SIDE B –

Please be careful no move RV503 (focus gain volume). RV504 (tracking gain volume) ordinarily.

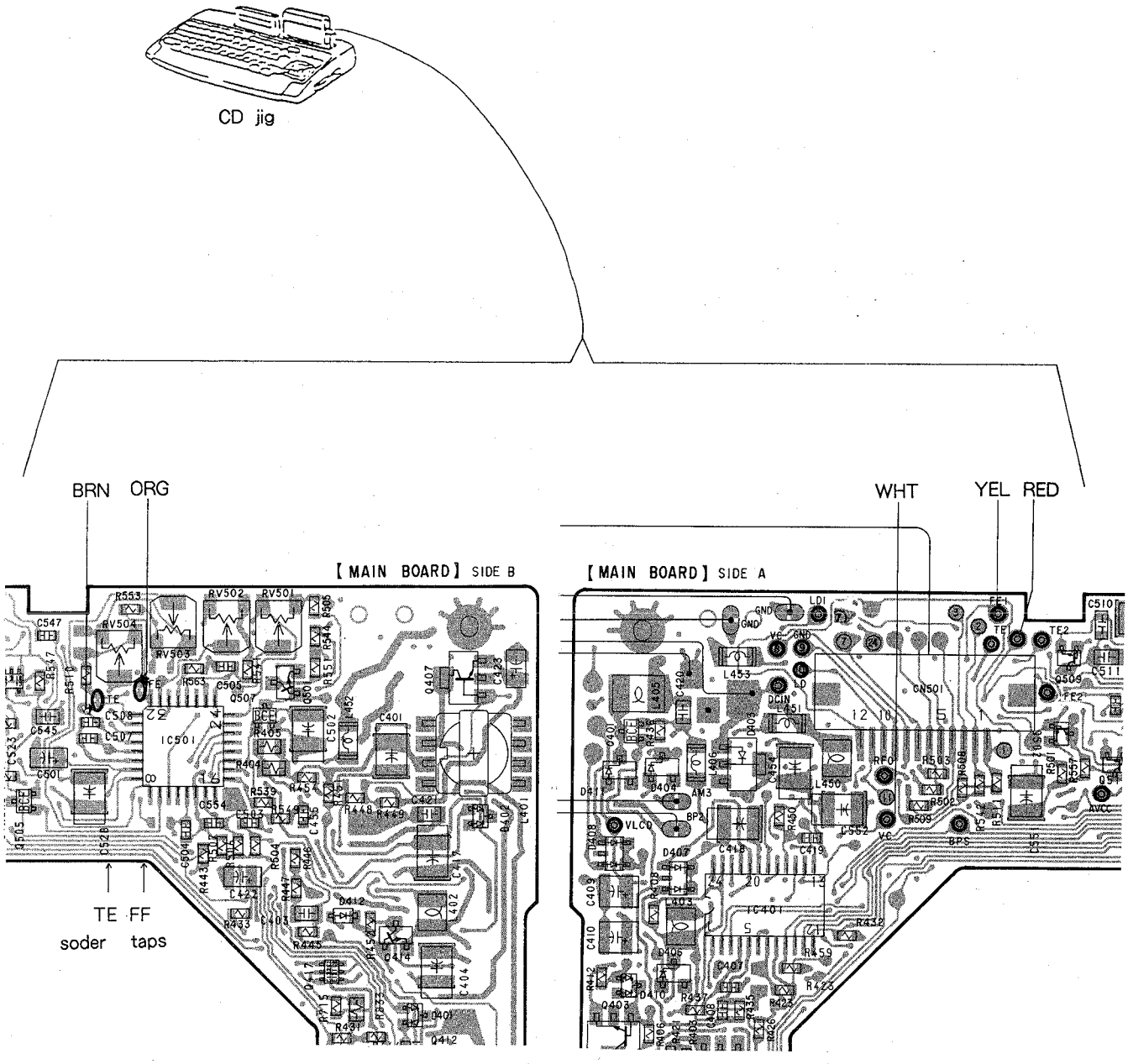
> On this set, it is very difficult to simplify this adjustment. For those sets on which symptoms such as "occasional skipping" are hard to discover or it is hard to tell if the set has been repaired, use the CD jig and perform this adjustment. Refer to the diagram below for connection of the CD jig. The adjustment procedure in the separate CD jig Instruction Manual.

—Adjustment locations—



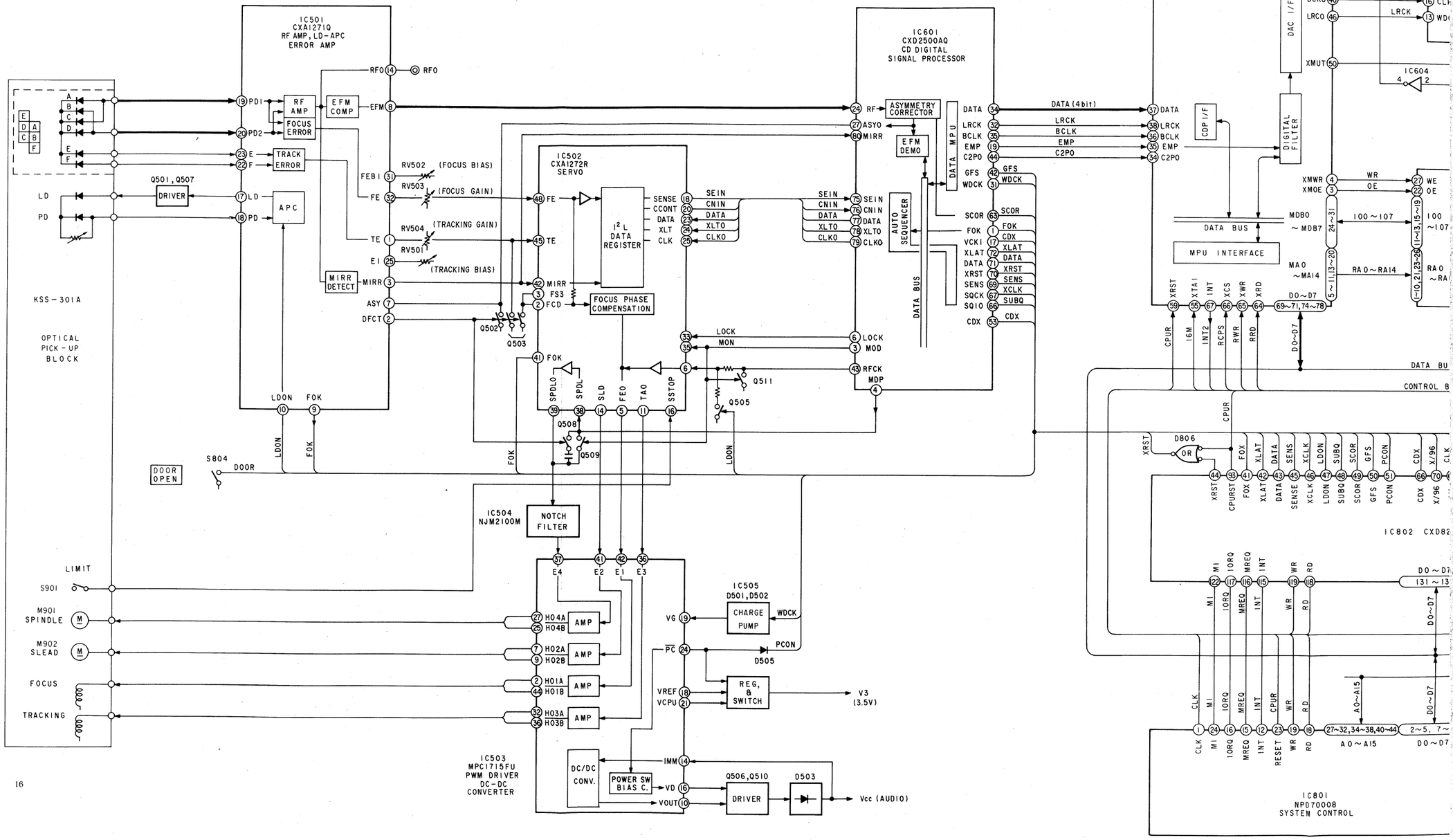
Connection to CD jig

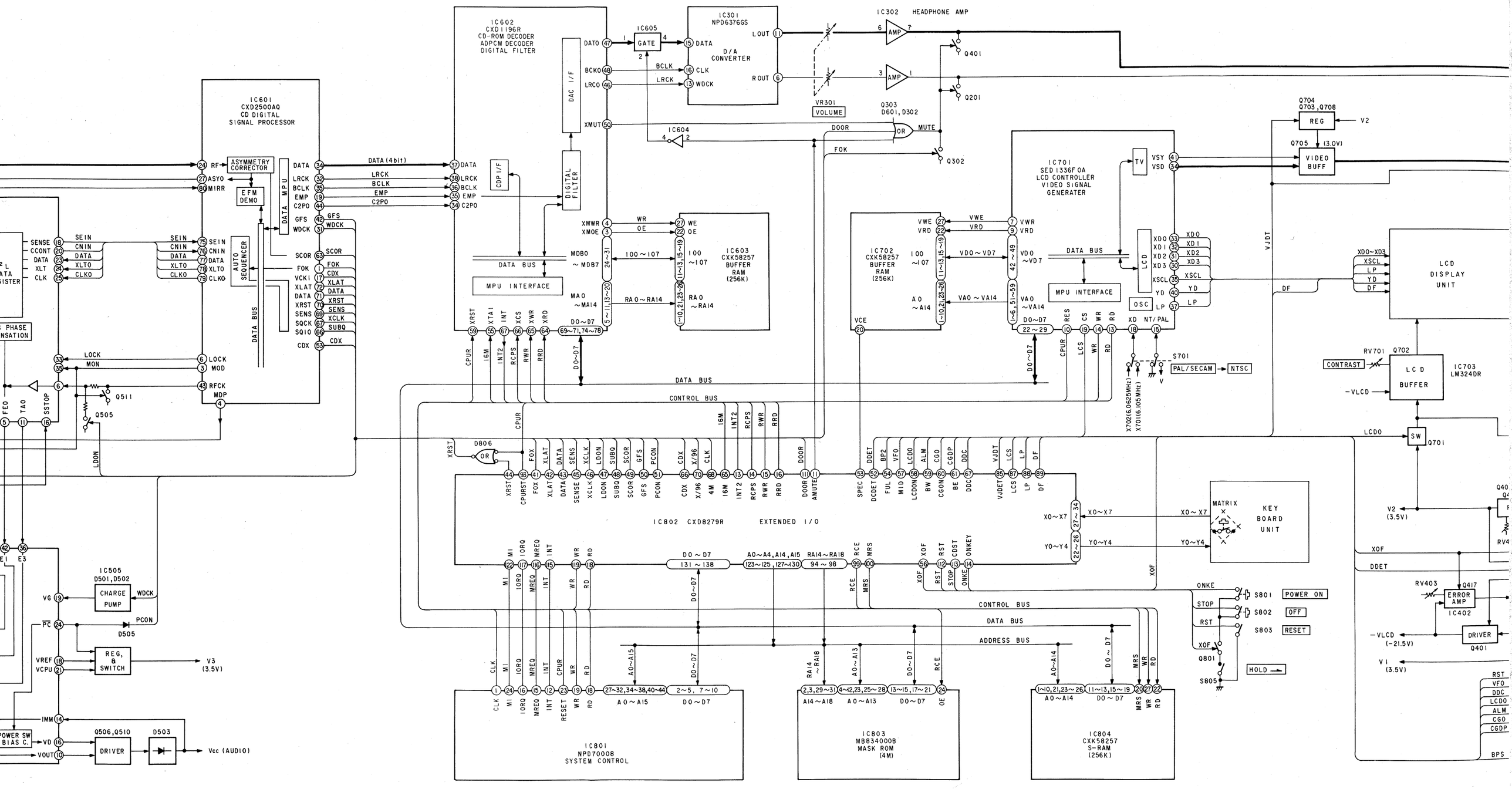
Remove the soldering jumpers at both TE and FE, and connect the CD jig as follows.

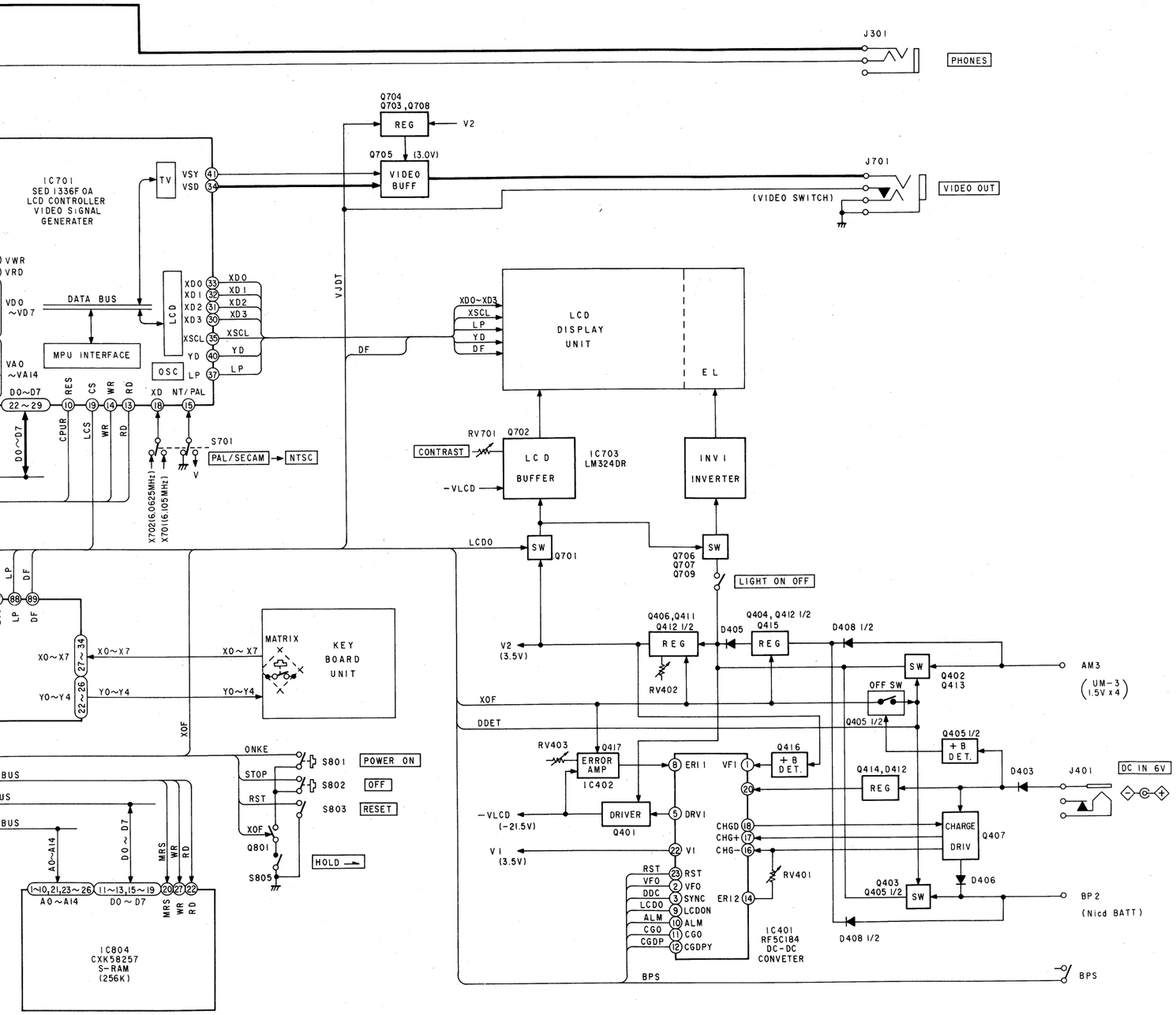


SECTION 5
DIAGRAMS

5-1. BLOCK DIAGRAM




IC601
CXD2500AQ
CD DIGITAL
SIGNAL PROCESSOR
ASYMMETRY CORRECTOR
EFM DEMO
AUTO SEQUENCER
DATA MPU
DATA BUS
RF
ASYO
MIRR
SENSE
CCONT
DATA
XLT
CLK
SEIN
CNIN
DATA
XLTO
CLKO
GFS
WDCK
SCOR
FOK
VCKI
XLAT
DATA
XRST
SENS
SQCK
SQIO
CDX
LOCK
MON
RFCK
MDP
Q511
Q505
LDON
FEO
TAO
SSTOP
E1
E3
IC505
D501,D502
CHARGE PUMP
VG
PC
PCON
D505
REG, & SWITCH
VREF
VCPU
V3 (3.5V)
IMM
POWER SW BIAS C.
VD
VOUT
Q506,Q510
DRIVER
D503
Vcc (AUDIO)
IC602
CXD1196R
CD-ROM DECODER
ADPCM DECODER
DIGITAL FILTER
DAC I/F
DIGITAL FILTER
CDP I/F
DATA (4bit)
LRCK
BCLK
EMP
C2PO
DATO
BCKO
LRCO
XMUT
IC605
GATE
IC301
NPD6376GS
D/A CONVERTER
LOUT
ROUT
IC302 HEADPHONE AMP
AMP
Q401
Q201
VR301
VOLUME
Q303
D601, D302
OR
MUTE
DOOR
FOK
Q302
IC604
XMWR
XMOE
WR
OE
MDB0 ~ MDB7
MA0 ~ MA14
RA0 ~ RA14
IC603
CXK58257
BUFFER RAM
(256K)
DATA BUS
MPU INTERFACE
XRST
XTAI
INT
XCS
XWR
XRD
D0~D7
CPUR
16M
INT2
RCPS
RWR
RRD
CONTROL BUS
D806
IC802 CXD8279R EXTENDED I/O
CPURST
FOX
XLAT
DATA
SENS
XCLK
LDON
SUBQ
SCOR
GFS
PCON
CDX
X/96
CLK
4M
DOOR
AMUTE
DDET
BP2
VFO
MID
LCDON
BW
CGO
CGDP
DDC
VJDT
LCS
LP
DF
SPEC
IC701
SED1336F0A
LCD CONTROLLER
VIDEO SIGNAL
GENERATER
TV
VSY
VSD
IC702
CXK58257
BUFFER RAM
(256K)
VCE
VWE
VRD
VD0~VD7
VA0~VA14
RES
CS
WR
RD
XD
NT/PAL
LCD
OSC
XD0
XD1
XD2
XD3
XSCL
YD
LP
S701
PAL/SECAM
NTSC
V
X702(16.0625MHz)
X701(16.105MHz)
Q704
Q703, Q708
REG
V2
Q705
(3.0V)
VIDEO BUFF
VJDT
DF
LCD DISPLAY UNIT
XD0~XD3
XSCL
LP
YD
DF
RV701
CONTRAST
Q702
LCD BUFFER
IC703
LM324DR
-VLCD
SW
Q701
LCDO
V2 (3.5V)
XOF
DDET
RV403
Q417
ERROR AMP
IC402
DRIVER
Q401
-VLCD (-21.5V)
V1 (3.5V)
RST
VFO
DDC
LCDO
ALM
CGO
CGDP
BPS
MATRIX
KEY BOARD UNIT
X0~X7
Y0~Y4
ONKE
STOP
RST
XOF
S801
POWER ON
S802
OFF
S803
RESET
Q801
S805
HOLD
IC801
NPD70008
SYSTEM CONTROL
IC803
MB8340008
MASK ROM
(4M)
IC804
CXK58257
S-RAM
(256K)
A0~A15
A14~A18
A0~A13
A0~A14
RCE
MRS
IORQ
MREQ
INT
RESET
CLK
MI

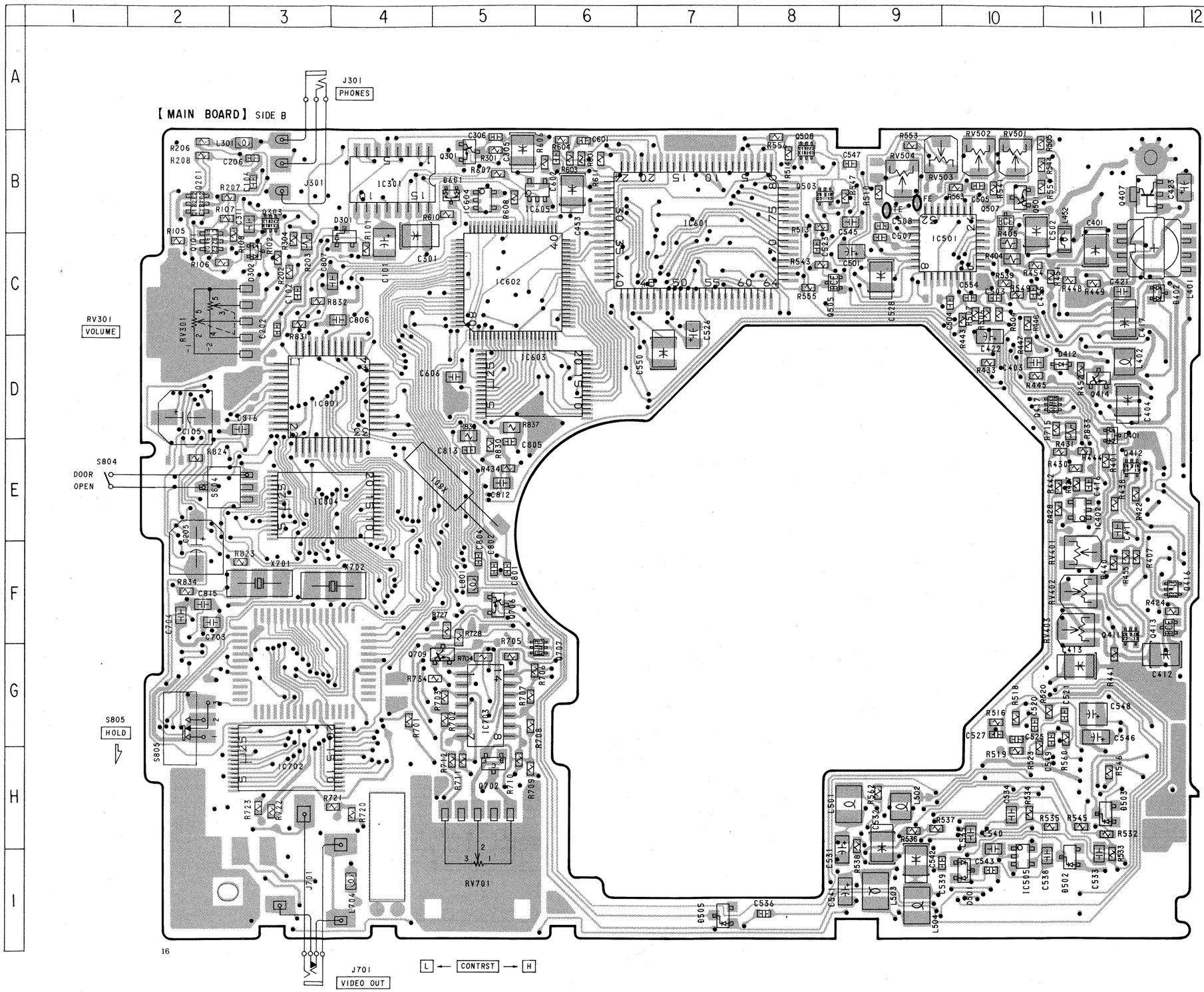

J301
PHONES
Q704
Q703,Q708
REG
V2
Q705
(3.0V)
VIDEO BUFF
J701
VIDEO OUT
(VIDEO SWITCH)
IC701
SED1336F0A
LCD CONTROLLER
VIDEO SIGNAL
GENERATER
TV
VSY
VSD
VJDT
DATA BUS
MPU INTERFACE
OSC
LCD
XD0
XD1
XD2
XD3
XSCL
YD
LP
XD
NT/PAL
DF
XD0~XD3
XSCL
LP
YD
DF
LCD
DISPLAY
UNIT
EL
RV701
Q702
CONTRAST
LC D
BUFFER
IC703
LM324DR
-VLCD
INVI
INVERTER
S701
PAL/SECAM
NTSC
V
X7016.105MHz)
X7021(6.0625MHz)
LCDO
SW
Q701
Q706
Q707
Q709
LIGHT ON OFF
Q406,Q411
Q412 1/2
REG
Q404, Q412 1/2
Q415
D405
D408 1/2
V2
(3.5V)
RV402
XOF
DDET
OFF SW
Q405 1/2
Q402
Q413
AM3
(UM-3
1.5V x 4)
Q405 1/2
+B
DET.
RV403
Q417
ERROR
AMP
IC402
Q416
+B
DET.
Q414,D412
REG
D403
J401
DC IN 6V
-VLCD
(-21.5V)
DRIVER
Q401
V1
(3.5V)
CHARGE
DRIV
Q407
D406
RV401
Q403
Q405 1/2
BP2
(Nicd BATT)
D408 1/2
IC401
RF5C184
DC-DC
CONVETER
BPS
MATRIX
KEY
BOARD
UNIT
X0~X7
Y0~Y4
ONKE
STOP
RST
XOF
S801
POWER ON
S802
OFF
S803
RESET
Q801
S805
HOLD
IC804
CXK58257
S-RAM
(256K)
A0~A14
D0~D7
MRS
WR
RD

5-2. PRINTED WIRING BOARDS • See page 52 for Semiconductor Lead Layouts.

• Semiconductor Location

Ref. No.	Location
D301	C-4
D302	C-3
D401	E-11
D402	C-12
D403	C-16
D404	C-15
D405	E-16
D406	D-15
D407	D-15
D408	C-15
D409	F-15
D410	D-15
D411	C-15
D412	D-11
D413	F-15
D501	I-10
D502	I-11
D503	H-11
D505	I-7
D601	B-5
D701	I-22
D703	I-22
D801	B-22
D802	B-22
D803	B-22
D804	B-22
D805	B-21
D806	C-21
IC301	B-4
IC302	B-24
IC401	D-16
IC402	E-11
IC501	C-10
IC502	B-19
IC503	I-18
IC504	H-16
IC505	I-10
IC601	C-7
IC602	C-5
IC603	D-6
IC604	B-5
IC605	B-6
IC701	G-23
IC702	H-3
IC703	G-5
IC801	D-4
IC802	D-23
IC803	F-23
IC804	E-3

Ref. No.	Location
Q101	C-2
Q201	B-2
Q301	B-5
Q302	B-23
Q303	B-3
Q304	B-23
Q401	B-15
Q402	E-15
Q403	E-15
Q404	E-16
Q405	E-15
Q406	F-16
Q407	B-12
Q408	G-16
Q409	G-16
Q410	G-16
Q411	F-11
Q412	E-11
Q413	F-12
Q414	D-11
Q415	F-15
Q416	F-12
Q417	D-11
Q501	B-10
Q502	B-18
Q503	B-8
Q505	C-8
Q506	H-15
Q507	B-10
Q508	B-8
Q509	B-18
Q510	H-15
Q511	C-18
Q701	I-22
Q702	H-5
Q703	H-23
Q704	H-24
Q705	H-23
Q706	F-5
Q707	G-6
Q708	H-24
Q709	G-5
Q801	C-23



Note on Mounting Diagram :

- ○—— : Parts extracted from the component side.
- ● : Through hole.
- ▒▒ : Pattern on the side which is seen.
  (Other patterns is not shown.)

【MAIN BOARD】 SIDE A

J401
DC IN 6V

AM-3
1.5V x 4

BLU
RED
BLK
ORG

BP-2
(4.0V)

CPTICAL
BLOCK

KSS-301A

SERVO

BPS
S903

RED
BLK

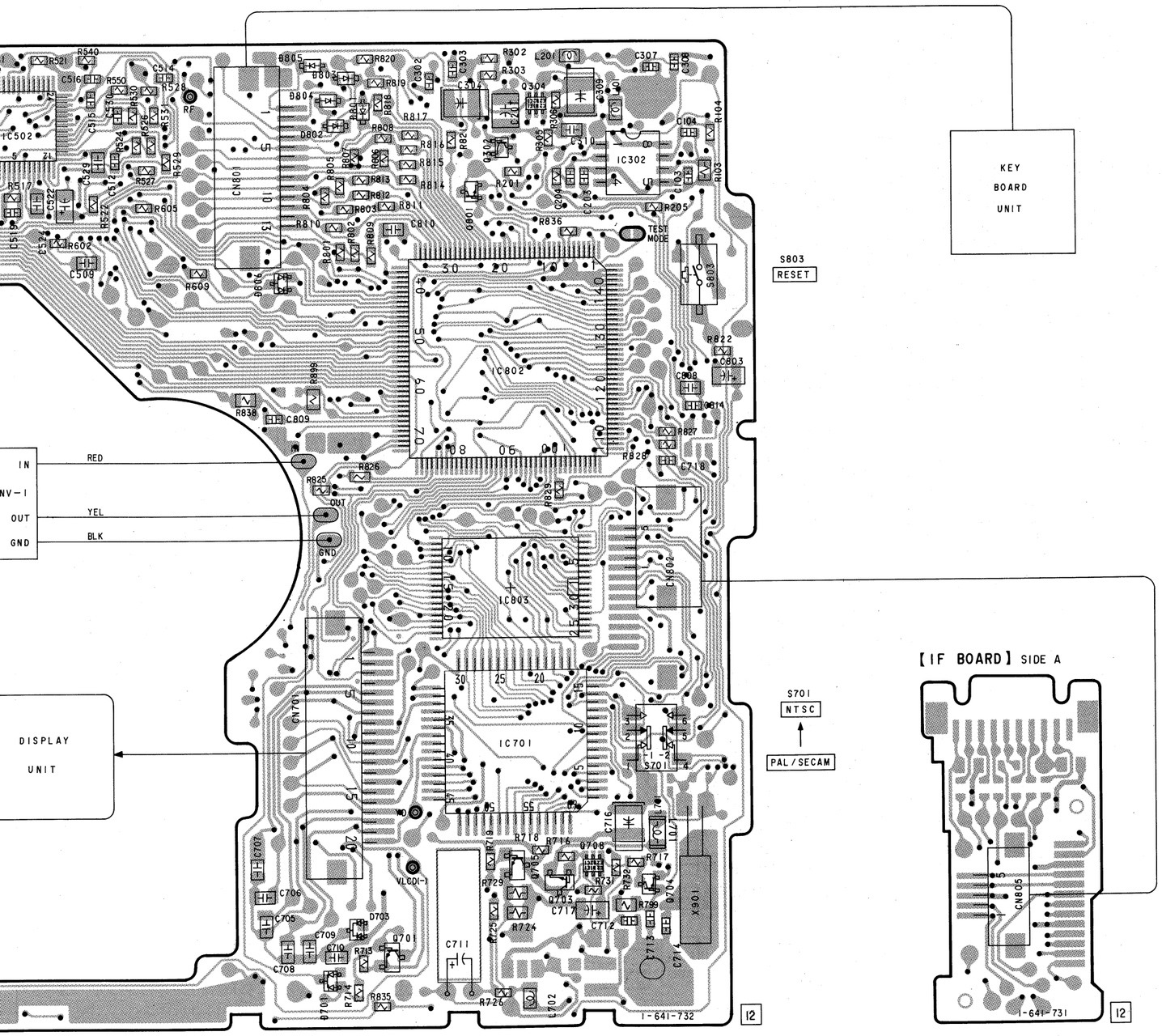
BPS

GND

IN
INV-I
OUT
GND

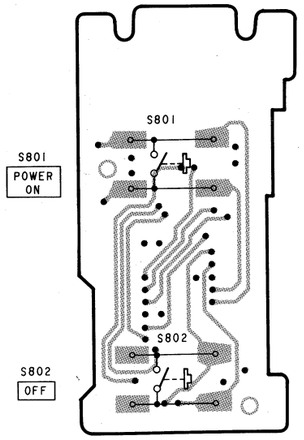
RED
YEL
BLK

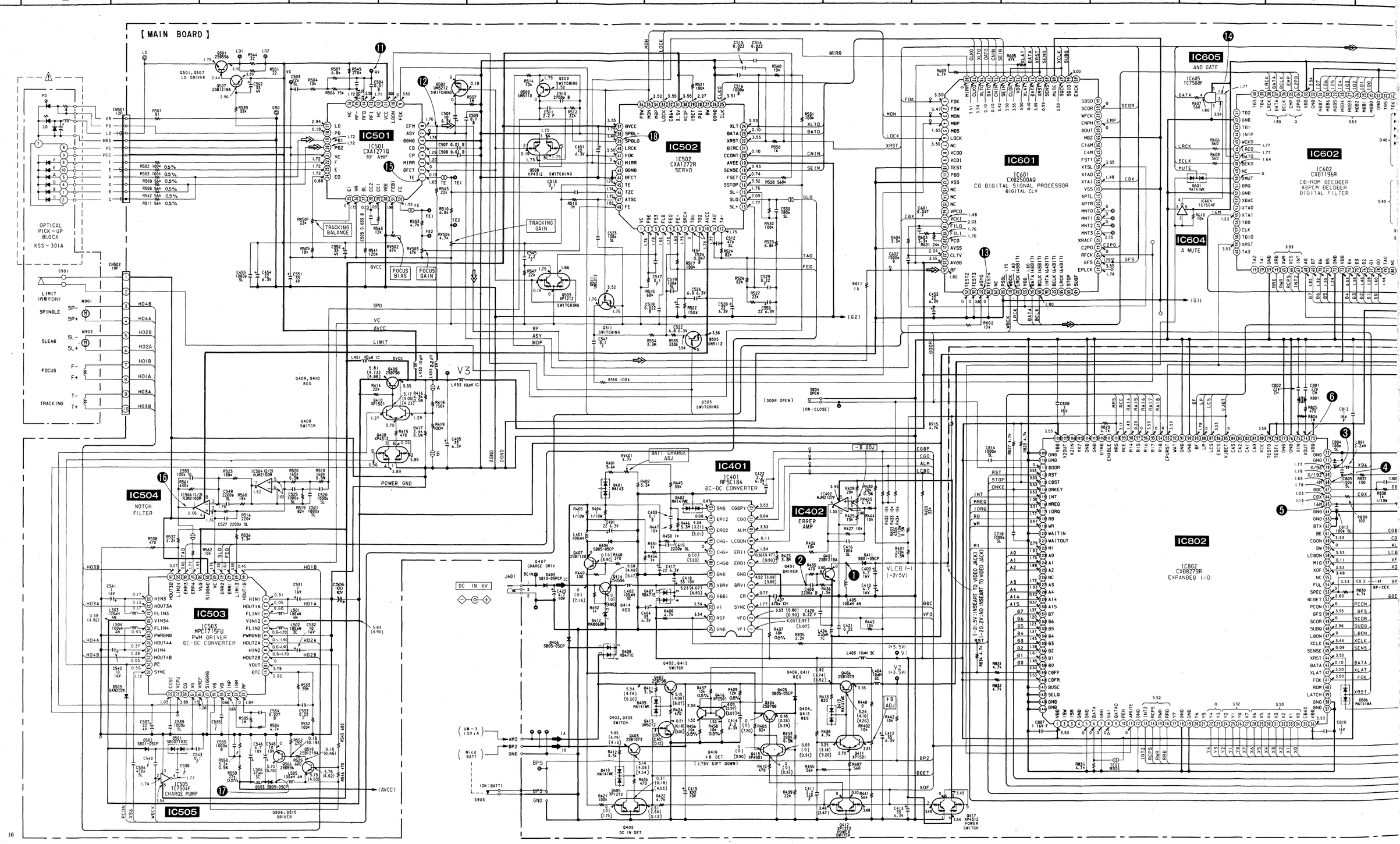
DISPLAY
UNIT

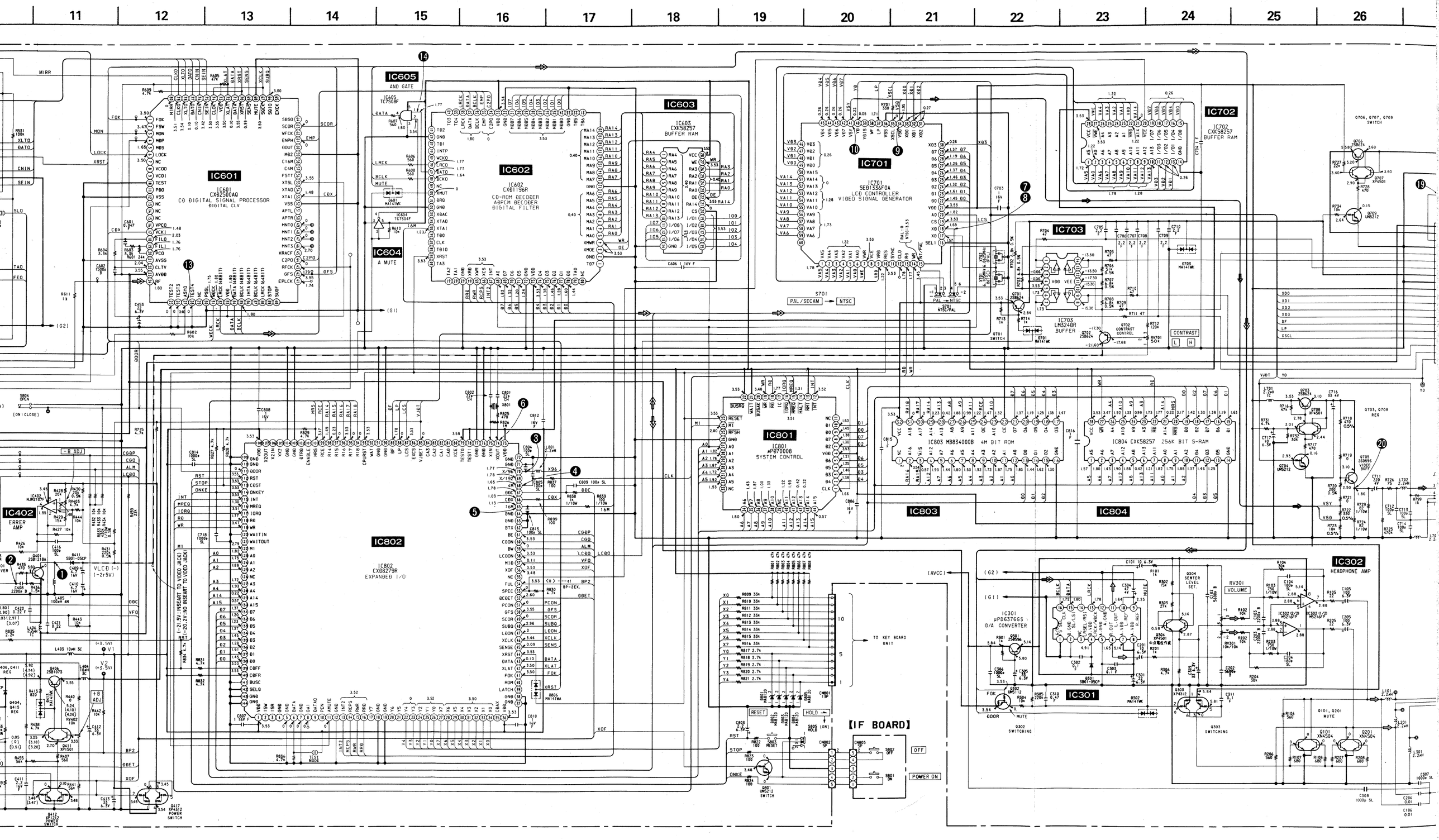


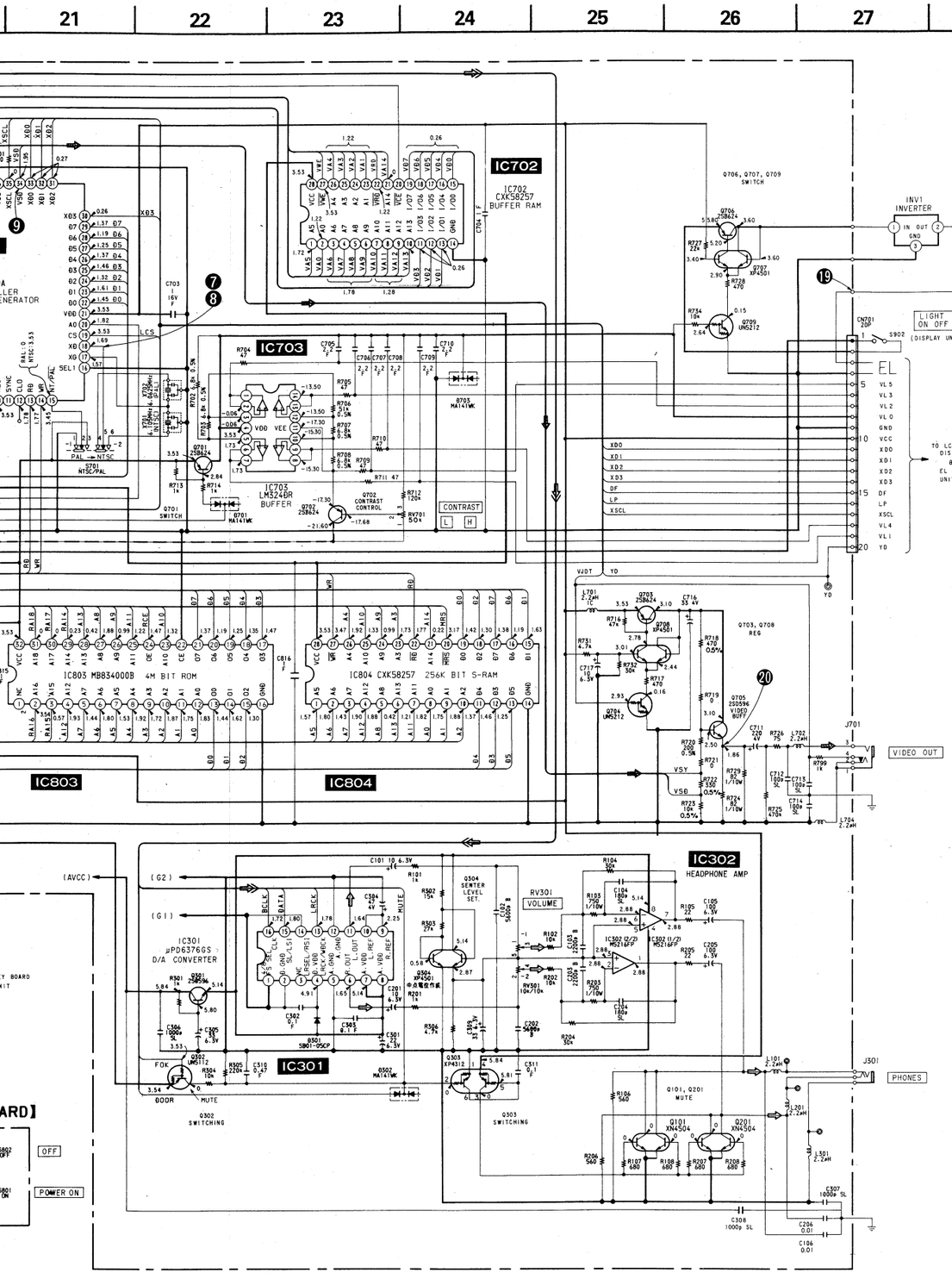
【IF BOARD】 SIDE A

【IF BOARD】 SIDE B




【MAIN BOARD】
IC501
CXA1271Q
RF AMP
IC502
CXA1272R
SERVO
IC503
MPC1715FU
PWM DRIVER
DC-DC CONVERTER
IC504
NOTCH
FILTER
IC505
TC7S04F
CHARGE PUMP
IC401
RF5C184
DC-DC CONVERTER
IC402
ERRER
AMP
IC601
CXD2500AQ
CD DIGITAL SIGNAL PROCESSOR
DIGITAL CLV
IC602
CXD1196R
CD-ROM DECODER
ADPCM DECODER
DIGITAL FILTER
IC604
A MUTE
IC605
AND GATE
IC802
CXD8279R
EXPANDED I/O
OPTICAL
PICK-UP
BLOCK
KSS-301A
TRACKING BALANCE
TRACKING GATE
FOCUS BIAS
FOCUS GAIN
BATT CHARGE ADJ
-B ADJ
+B ADJ
DC IN 6V
(DOOR OPEN)
(ON:CLOSE)
(ON:BATT)
VLCD (-)
(-2V)
(-2.1V:INSEART TO VIDEO JACK)
(-20.2V:NO INSEART TO VIDEO JACK)
(+3.5V)
(AVCC)
POWER GND
AGND
DGND


11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
IC601
CXD2500AQ
CD DIGITAL SIGNAL PROCESSOR
DIGITAL CLV
IC602
CXD1196R
CD-ROM DECODER
ADPCM DECODER
DIGITAL FILTER
IC603
CXK58257
BUFFER RAM
IC604
A MUTE
IC605
AND GATE
IC701
SED1356F0A
LCD CONTROLLER
VIDEO SIGNAL GENERATOR
IC702
CXK58257
BUFFER RAM
IC703
LM3246R
BUFFER
IC801
μPD70008
SYSTEM CONTROL
IC802
CXD8279R
EXPANDED I/O
IC803 MB834000B 4M BIT ROM
IC804 CXK58257 256K BIT S-RAM
IC301
μPD6376GS
D/A CONVERTER
IC302
HEADPHONE AMP
IC402
ERRER AMP
S701
PAL/SECAM
NTSC
PAL
NTSC/PAL
CONTRAST
VOLUME
【IF BOARD】
TO KEY BOARD UNIT
POWER ON
OFF
(AVCC)
(G1)
(G2)
(+5.5V)
VLCD (-)
(-2r5V)
(-2.5V:INSERT TO VIDEO JACK)
(-20.2V:NO INSERT TO VIDEO JACK)



TOTAL CURRENT

POWER INPUT		POWER OFF	POWER ON	
			EL, VIDEO OFF	EL, VIDEO ON
AM3 V_{IN} = 6.0V	IA (mA)	0.05	230	360
BP2 V_{IN} = 4.8V	IB (mA)	0.02	230	370
DC IN (AC PACK) V_{IN} = 7.3V	IC (mA)	0.59	210	340

Note on Schematic Diagram :

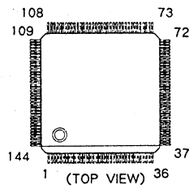
- All capacitors are in μF unless otherwise noted. pF: μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and ¼ W or less unless otherwise specified.
- % : indicates tolerance.

Note: The components identified by matk ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number sppecified.	**Note:** Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifie.

- ▬▬ : B + Line.
- ▬ ▬ ▬ : B − Line.
- ▭ : adjustment for repair.
- Total current is measured with no disc installed.
- Power voltage is dc 7.47 V and fed with regulated dc power supply from external power voltage jack.
- Voltage and waveforms are dc with respect to ground under no-signal conditions.
  - no mark : Supplied 6.0V for AM3.
  - ( ) : Supplied 4.8V for BP2.
  - [ ] : Supplied 7.47V for DC IN.
- Voltages are taken with a VOM (input impedance 10 MΩ). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope. Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.
- Signal path.
  - ⇨ : ANALOG
  - ⇨ : VIDEO
  - ⇨ : DIGITAL

5-4. SEMICONDUCTOR LEAD LAYOUTS

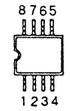
CXD8279R



M5216FP

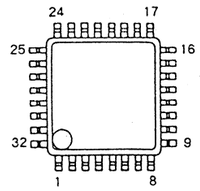
NJM2100M

LM324D



(TOP VIEW)

CXA1271Q



MARKING SIDE VIEW

2SA1677

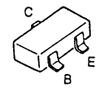
2SB624-BV345

2SB1218A-QRS

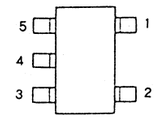
2SD596DV345

2SD596-DV5

UN5212



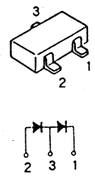
XP1212



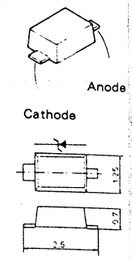
1. DTr1C
2. DTr2C
3. DTr2B
4. DTr1E
   DTr2E
5. DTr1B

1SS226

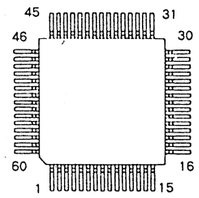
SB007T03C



MA8120-L

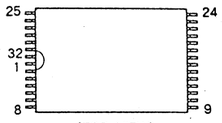


SED1336FOA



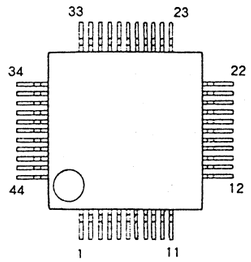
MARKING SIDE VIEW

MB834000B-15PFTN-31F

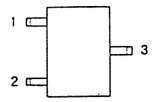


(TOP VIEW)

UPD70008AGB-6-3B4



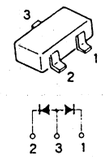
UN5110-QRS



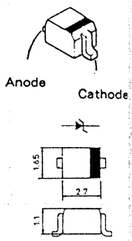
1 : Base
2 : Emitter
3 : Collector

1SS181

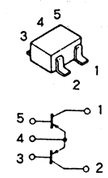
MA141WK



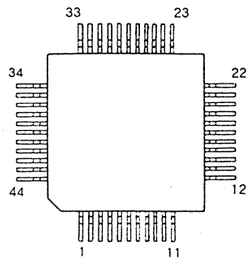
DTZ6.8B



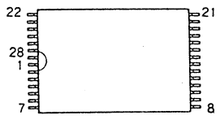
XP2501



MPC1715FU

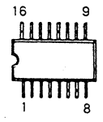


CXK58257ATM-12LB



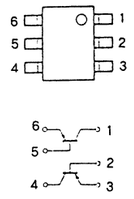
(TOP VIEW)

UPD6376GS

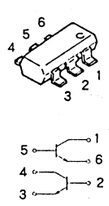


(TOP VIEW)

XP4501

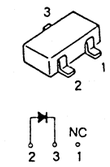


XN4504

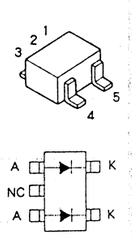


SB01-05CP

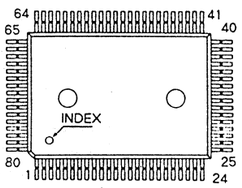
SB05-05CP



RB471E



CXD2500AQ

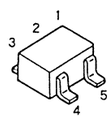


MARKING SIDE VIEW

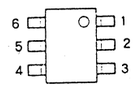
NJM2107F

SC7S04F

TC7S08F

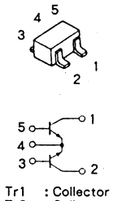


XP4312



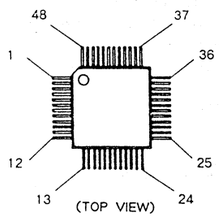
1. DTr1E
2. DTr1B
3. DTr2C
4. DTr2E
5. DTr2B
6. DTr1C

XP1501



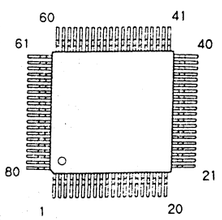
1 Tr1 : Collector 1
2 Tr2 : Collector 2
3 Tr2 : Base 2
4 Tr1,2 : Emitter
5 Tr1 : Base 1

CXA1272R



(TOP VIEW)

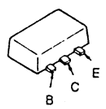
CXD1196AR



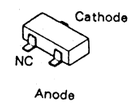
2SB798-DL

2SB1073-Q

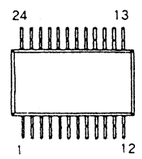
2SB1120-F



SB10-05PCP

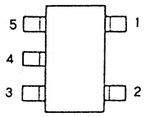


RF5C184



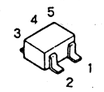
(TOP VIEW)

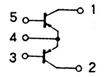
XP1212



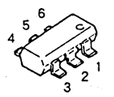
1. DTr1C
2. DTr2C
3. DTr2B
4. DTr1E
   DTr2E
5. DTr1B

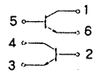
XP2501





XN4504





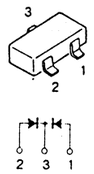
XP1501

1 Tr1 : Collector 1
2 Tr2 : Collector 2
3 Tr2 : Base 2
4 Tr1,2 : Emitter
5 Tr1 : Base 1

1SS226
SB007T03C

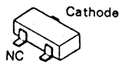
1SS181
MA141WK

MA152WK



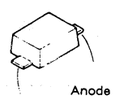
SB01-05CP
SB05-05CP

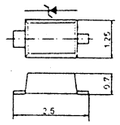
SB10-05PCP



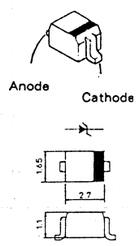
Anode

MA8120-L

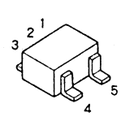


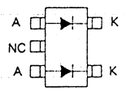


DTZ6.8B



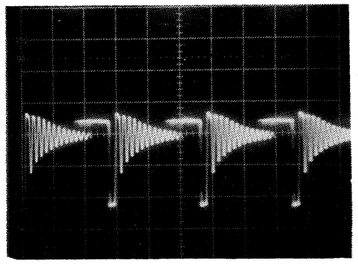
RB471E





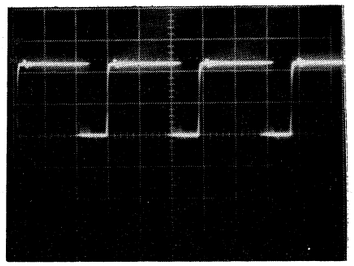
5-5. WAVEFORMS

❶ Q401 © PIN



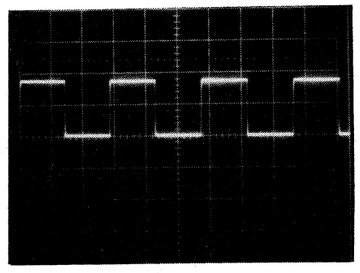
V : 10V/div 30Vp-p
H : 2usec/div 172KHz

❷ IC401 ⑤ PIN



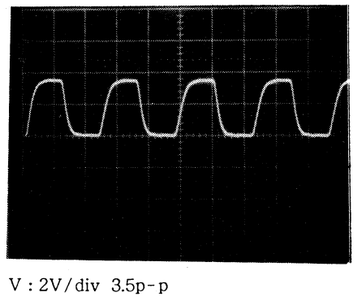
V : 2V/div 4.5Vp-p
H : 2usec/div 172KHz

❸ IC802 ⑦ PIN



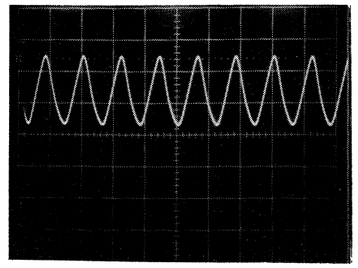
V : 2V/div 3.5Vp-p
H : 2usec/div 172KHz

❹ IC802 ⑱ PIN



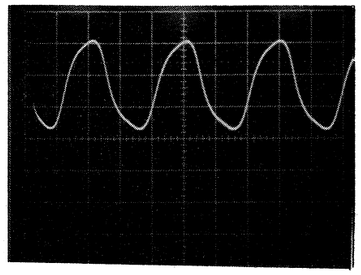
V : 2V/div 3.5p-p
H : 0.1usec/div 4.16MHz

❺ IC802 ⑮ PIN



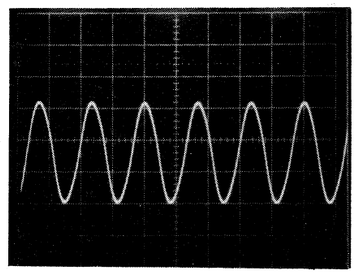
V : 1V/div 2.2Vp-p
H : 0.05usec/div 16.6MHz

❻ IC802 ⑭ PIN



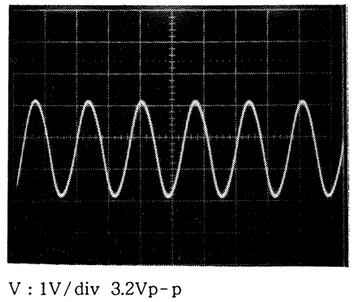
V : 1V/div 2.8Vp-p
H : 0.02usec/div 8.62MHz

❼ IC701 ⑱ PIN



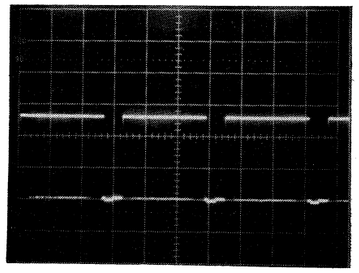
V : 1V/div 3.2Vp-p
H : 0.1usec/div 6.1MHz

❽ IC701 ⑱ PIN



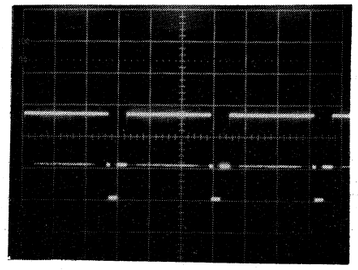
V : 1V/div 3.2Vp-p
H : 0.1usec/div 6.06MHz

❾ IC701 ㉞ PIN



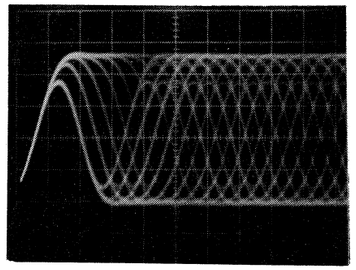
V : 1V/div 2.6Vp-p
H : 20usec/div 63usec

❿ IC701 ⑩ PIN



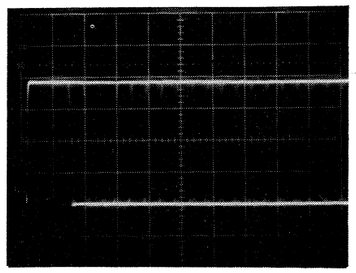
V : 1V/div 2.6Vp-p
H : 20usec/div 63usec

⓫ IC501 ⑭ PIN



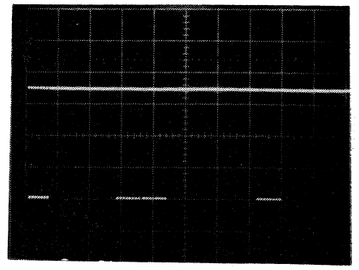
V : 20mV/div 88mVp-p
H : 0.5usec/div

⓬ IC501 ⑧ PIN



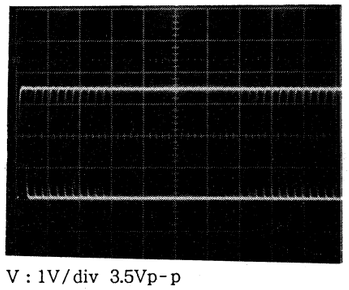
V : 50mV/div 190mVp-p
H : 0.5usec/div

⓭ IC601 ㉗ PIN



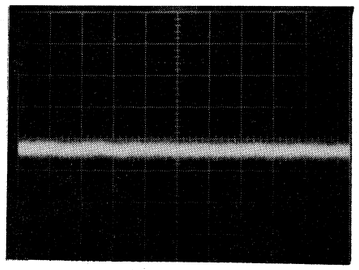
V : 1V/div 3.5Vp-p
H : 20usec

⓮ IC602 ㊼ PIN



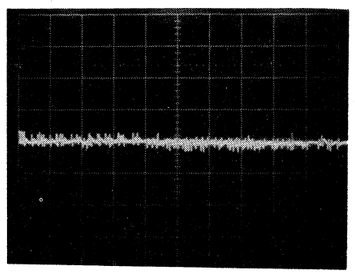
V : 1V/div 3.5Vp-p
H : 0.5usec/div

⓯ IC501 ① PIN



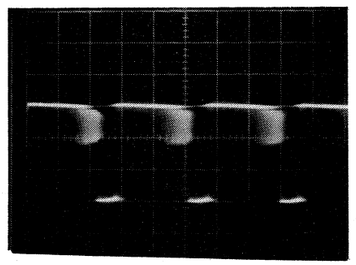
V : 1V/div 0.8Vp-p
H : 1mSEC/div

⓰ IC504 ① PIN



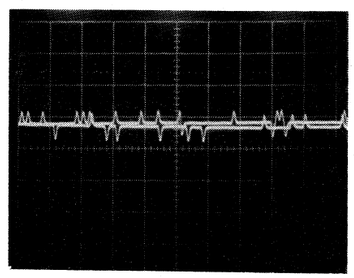
V : 1V/div 0.7Vp-p
H : 5mSEC/div

⓱ Q506 Ⓒ PIN



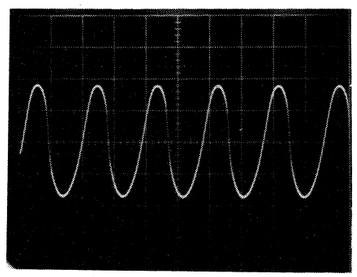
V : 2V/div 8Vp-p
H : 2usec/div 172KHz

⓲ IC502 ㊳ PIN



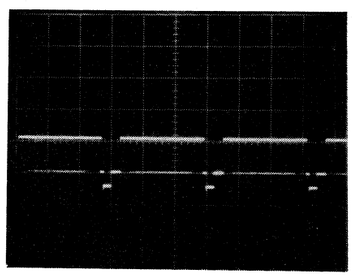
V : 50mV/div 1Vp-p
H : 2mSEC/div

⓳ INV-1 (OUT) PIN



V : 50V/div 180Vp-p
H : 0.5mSEC/div 1.05KHz

⓴ Q705 Ⓔ PIN



V : 1V/div 1.5Vp-p
H : 20usec/div 63usec

5-6. IC DESCRIOTIONS

• IC503 PWM driver (MPC1715FU)

The following functions are applicable.

1. Four system PWM AMP circuit
2. REG circuit for microcomputer (2V)
3. VREF (1.25 V) circuit
4. 5.8 V DC-DC converter control circuit
5. Charge pump circuit (12 V)
6. VD SW (VIN —o/o— VD)

Pin No.	Pin Name	I/O	Description
1	H IN 1	I	Thread PWM balanced input
2	H OUT 1A	O	Thread motor drive output
3	FL IN1	O	Thread PWM AMP output (176 kHz rectangular waveform)
4	V IN 12	—	PWM AMP 1, 2 + B
5	FL IN 2	O	Focus PWM AMP output (176 kHz rectangular waveform)
6	PWR GND	—	GND
7	H OUT 2A	O	Focus coil drive output ⊕
8	H IN 2	I	Focus PWM balanced input
9	H OUT 2B	O	Focus coil drive output ⊖
10	V OUT	O	5.8 V step up circuit control output
11	DTC	I	Step up circuit switching maximum duty limiter terminal
12	FR	O	Step up circuit differential amplifier output
13	INM	I	Step up circuit differential amplifier return input
14	IMP	I	5.8 V step up circuit control input
15	VB	—	Step up circuit differential amplifier bias terminal
16	VD	O	+ B output (OFF when STOP)
17	SIG GND	—	GND
18	VREF	O	5.8 V REG circuit reference output
19	VG	I	Motor drive FET drive (12 V) input
20	CG	O	External terminal of motor drive FET drive (VG) oscillation capacitor
21	VCPU	O	Power supply output for microcomputer (IC801)
22	COSC	O	Saw-tooth waveform oscillation output (frequency : approx. 6 μSec)
23	SYNC	I	System clock input
24	PC	I	Power ON/OFF control input
25	H OUT 4B	O	Tracking coil drive output
26	H IN 4	I	Tracking PWM balanced output
27	H OUT 4B	O	Tracking coil drive output ⊕
28	PWR GND	—	GND
29	FL IN 4	O	Tracking PWM AMP output (176 kHz rectangular waveform)
30	V IN 24	—	PWM AMP 3, 4 + B
31	FL IN 3	O	Tracking coil PWM AMP output (176 kHz rectangular waveform)
32	H OUT 3A	O	Spindle motor drive output
33	H IN 3	I	Spindle PWM balanced input
34	H OUT 3B	O	Spindle motor drive output ⊖
35	LIM 24	I	PWM AMP 2, 4 output limiter terminal
36	ERR 3	I	Tracking servo error input
37	ERR 4	I	Spindle servo error input
38	VLG	—	+ B
39	SIG GND	—	GND
40	VC	—	1/2 Vcc (1.8 V)
41	ERR 2	I	Thread servo error input
42	ERR 1	I	Focus servo error input
43	LIM 13	I	PWM AMP 1, 3 output limiter terminal
44	H OUT 1B	O	Thread motor drive output ⊖

* The FL IN1 - IN4 and VOUT signals are output synchronizing the SYNC (176 kHz) signal. When there are no SYNC signals, the FL IN1 - IN4 signal are output synchronizing the internal oscillation (approx. 200 kHz), does not match the signal processing system and the operations after the focus operation (UP/DOWN) are not conducted.

• IC802 Port (CXD8279R)

Performs the operations of the whole unit as an expansion port of the system controller (IC801).

Pin No.	Pin Name	I/O	Description
1	VDD	—	———
2	15W	OX	Reserve output 18 – 1F
3	15R	OX	Reserve output 18 – 1F
4	GND	—	———
5	GND	—	———
6	BATA	I	03R bit5
7	GND	—	———
8	GA1	OX	00W bit3
9	DATA0	OP	
10	PEN	OP	10W bit7
11	AMUTE	OP	10W bit0, INITIAL = H by RST
12	GND	—	———
13	INT2	I	Interruption input with other IC
14	RCPS	OX	Chip select for register access of CDX1196R, 0A or 0B
15	RWR	OX	WR signal for register access of CDX1196R, OAW or OBW
16	RRD	OX	RD signal for register access of CDX1196R, OAR or OBR
17	Y7	OX	Key select terminal, 01W
18	GND	—	———
19	GND	—	———
20	Y6	OX	
21	Y5	OX	
22	Y4	OX	
23	Y3	OX	Key select terminal, 01W
24	Y2	OX	
25	Y1	OX	
26	Y0	OX	
27	X7	I	01R bit7
28	X6	I	01R bit6
29	X5	I	01R bit5
30	X4	I	01R bit4
31	X3	I	bit21001R bit3
32	X2	I	01R bit2
33	X1	I	01R bit1
34	X0	I	OIR bit0
35	CDAX	OP	10W bit5
36	VDD	—	———
37	GND	—	———
38	GND	—	———
39	LATCH	OP	Serial control for CD
40	ROM	OP	10w bit2
41	FOK	I	10R bit2
42	LAT	OP	10W bit6 (XLAT)
43	DATA	OP	Serial control for CD
44	XRST	OP	INITIAL = H by 10w bit3 RST
45	SENSE	I	10R bit4
46	XCLK	OP	Serial control for CD
47	LDON	OP	INITIAL = H by 10w bit4 RST
48	SUBQ	I	OFR bit0. Also, used for serial input.
49	SCOR	I	10R bit3, interruption input
50	GFS	I	11R bit5
51	PCON	O	Control terminal for CD section. CD section is OFF when "H".
52	DCDET	I	03R bit7
53	SPEC	OX	16W bit0, INITIAL = L by RST
54	FUC	I	03R bit3 (FUL)
55	NC	—	———
56	XOF	O	Crystal oscillation display. Oscillation ON when "H" and STOP when "L".
57	MID	I	03R bit2
58	LCDON	OX	Liquid display enable, Displayed when "L".
59	BW	I	03R bit1
60	CGON	OX	16W bit7, INITIAL = L by RST
61	BE	I	03R bit0
62	BTX	I	03R bit4
63	GND	—	
64	GND	—	
65	16M	OX	System clock output for CDX1196R, 16.93 MHz
66	CDX	OP	16.93 MHz output for CD
67	DDC	OX	176 KHCLCK for power supply
68	4M	OX	CPU clock
69	X/192	OP	88.2 kHz output
70	X/96	OP	176 kHz output

Key select terminal, 01W

	bit2	1	0
Y7	1	1	1
Y6	1	1	0
Y5	1	0	1
Y4	1	0	0
Y3	0	1	1
Y2	0	1	0
Y1	0	0	1
Y0	0	0	0

Pin No.	Pin Name	I/O	Description
71	GND	—	———
72	GND	—	———
73	VDD	—	———
74	XOUT	O	Crystal oscillation connection terminal (system CLK)
75	XIN	I	Crystal oscillation connection terminal (system CLK)
76	GND	—	
77	GND	—	
78	TEST1		Fixed to H.(internal test)
79	TEST0		Fixed to H.(internal test)
80	KCE	OX	Chip select to Kanji ROM
81	CA0	OX	} Address for Kanji ROM
82	CA1	OX	
83	CA2	OX	
84	CA3	OX	
85	BSAX	I	OFR bit2 (VJDET)
86	EXCS	OX	Reserve chip select
87	LCS	OX	Chip select 08 or 09 for LCD controller
88	LP	I	LP signal input from LCD controller
89	DF	OX	Division frequency output for LP input
90	GND	—	
91	GND	—	———
92	WAT	OX	———
93	CPURST	OX	Reserve output, 18 – 1F
94	R18	OX	RESET signal output of CPU
95	R17	OX	A18 – when 4 M ROM is used.
96	R16	OX	A17 – when 4 M ROM is used.
97	R15	OX	A16 – when 4 M ROM is used.
98	R14	OX	A15 – when 4 M ROM is used.
99	RCE	OX	A14 – when 4 M ROM is used.
100	MRS	OX	Chip select of main ROM
101	ENABLE	OX	Chip select of main ROM
102	DTRD	OX	
103	GND	—	
104	GND	—	
105	XX2		
106	X2 IN	I	———
107	X2 OUT	O	———
108	VDD	—	———
109	GND	—	———
110	GND	—	———
111	DOOR	I	10R bit0
112	RST	I	RESET input : IC is initialized.
113	CDST	I	02R bit6
114	KON	I	02R bit7 (ON KEY)
115	INT	OX	INT output to CPU
116	MREQ	I	MREQ signal input of CPU
117	IORQ	I	IORQ signal input of CPU
118	RD	I	RD signal of CPU
119	WR	I	WR signal input from CPU
120	WIN	I	WAIT signal input
121	WOT	OX	WAIT signal input
122	M1	I	M1 input of CPU
123	A0	I	A0 input of CPU
124	A1	I	A1 input of CPU
125	A2	I	A2 input of CPU
126	NC	—	———
127	A3	I	A3 input of CPU
128	A4	I	A4 input of CPU
129	A14	I	A14 input of CPU
130	A15	I	A15 input of CPU
131	D7	I/O	D7 input of CPU
132	D6	I/O	D6 input of CPU
133	D5	I/O	D5 input of CPU
134	D4	I/O	D4 input of CPU
135	D3	I/O	D3 input of CPU
136	D2	I/O	D2 input of CPU
137	D1	I/O	D1 input of CPU
138	D0	I/O	D0 input of CPU
139	CDFF	I	02R bit5
140	CDFR	I	02R bit4
141	BUSC	I	OFR bit7
142	SELQ	I	OFR bit1
143	GND	—	———
144	GND	—	———

0X : High impedance when an crystal oscillation of 56-pin is stopped.
0P : High impedance when 51-pin CD control terminal is H and CD section is OFF.

RD I/O Map

* Undefined

Address A7~A0	d7	d6	d5	d4	d3	d2	d1	d0
00	*	*	*	*	*	TINT	INT2	INT1
01	X7	X6	X5	X4	X3	X2	X1	X0
02	KON	KSTOP	KFF	KFR	KPZ	*	*	*
03	DCDET	ON-EN	*A	BTX	FUI	MOD	BW	BE
04	ALL *							
05	ALL *							
06	ALL *							
07	ALL *							
08	← (LCDC AR) →							
09	← (LCDC DR) →							
0A	← (8951 AR) →							
0B	← (8951 DR) →							
0C	ALL *							
0D	*							
0E	d7	d6	← (SIO data Read) →				d1	d0
0F	BUSC	*	*	*	*	BSAX	SELQ	SI
10	*	*	GFS	SENS	WT1	FOK	*	DOOR
11	ALL *							
12	ALL *							
13	ALL *							
14	ALL *							
15	ALL *							
16	Reserve							
17								
18~1F	(Reserve output NAT)							

*A: Service mode
H: Service

WR I/O Map

* Undefined

Address A7~A0	d7	d6	d5	d4	d3	d2	d1	d0
00	TINT EN	INT2 EN	INT1 EN	TINT RST	GA1	INT1 RST	INT2 polarity	INT1 polarity
01	*	*	*	*	*	K2	K2	K0
02	d7	d6 ← (TIMER DATA) →					d1	d0
03	*	*	*	*	*	*	*	TIMER START
04	*	*	d5 ← (START TIMER DATA) →					d0
05	*	*	d5 ← (STOP TIMER DATA) →					d0
06	XTalon	d1	d0	*	*	*	OFF TIMER	ON Key EN
07	LCD OFF	*	*	**		**		Pcon OFF
08	← (LCDC AR) →							
09	← (LCDC DR) →							
0A	← (8951 AR) →							
0B	← (8951 DR) →							
0C	P3H	P3L	P2H	P2L	P1H	P1L	P0H	P0L
0D	*	*	*	*	*	*	*	*
0E	d7	d6 ← (Serial out data) →					d1	d0
0F	Transmission trigger(No bit specified)							
10	PEN	*/LAT	CDAX	LDON	XRST	ROM	OT1	AMute
11	KCE INH	Bunkd 2	Bunk 1	Bunk 0	CA12	CA11	CA10	CA9
12	CGON	SPEC	*	*	CA3	CA2	CA1 (POWER)	CA0 (BUSY)
13	*	*	*	*	d3	d2	d1	d0
14	ALL *							
15	ALL *							
16	*	*	*	*	*	*	*	*
17	Reserve							
18~1F	(Reserve output WAT)							

• IC602 CD-ROM Decoder (CXD1196R)

CD-ROM data is taken in with CD section, its error is corrected and transmits data for a request from system controller (IC801).

Pin No.	Pin Name	I/O	Description
1	TD7	I/O	Test terminal
2	GND	—	GND
3	XMOE	O	Buffer memory output enable negative logic signal
4	XMWR	O	Buffer memory write enable negative logic signal
5	MA0	O	Buffer memory address (LSB)
6	MA1	O	} Buffer memory address
7	MA2	O	
8	MA3	O	
9	MA4	O	
10	MA5	O	
11	MA6	O	
12	GND	—	GND
13	MA7	O	} Buffer memory address
14	MA8	O	
15	MA9	O	
16	MA10	O	
17	MA11	O	
18	MA12	O	
19	MA13	O	
20	MA14	O	Buffer memory address (MSB)
21	TD6	I/O	Test terminal
22	TD5	I/O	Test terminal
23	GND	—	GND
24	MDB0	I/O	Buffer memory data bus (LSB)
25	MDB1	I/O	} Buffer memory data bus
26	MDB2	I/O	
27	MDB3	I/O	
28	MDB4	I/O	
29	MDB5	I/O	
30	MDB6	I/O	
31	MDB7	I/O	
32	GND	—	GND
33	VDD	—	Power supply terminal
34	C2PO	I	C2 pointer positive logic signal from CD player
35	EMP	I	Emphasis positive logic signal from CD player
36	BCLK	I	Bit clock signal from CD player
37	DATA	I	Data signal from CD player
38	LRCK	I	LR clock signal for CD player
39	TD4	I/O	} Test terminal
40	TD3	I/O	
41	TD2	I/O	
42	GND	—	GND
43	TD1	I/O	Test terminal
44	INTP	I	Polarity control signal of INT terminal
45	WCKO	O	Word clock signal to DA converter
46	LRCO	O	LR clock signal to DA converter
47	DATO	O	Data signal to DA converter
48	BCKO	O	Bit clock signal to DA converter
49	N.C	—	
50	MUTE	O	Mute positive logic signal
51	DRQ	O	DMA request positive logic signal
52	N.C	—	
53	XDAC	I	Acknowledge negative logic signal for DRQ
54	XTL2	O	Crystal oscillation circuit output terminal
55	XTL1	I	Crystal oscillation circuit input terminal
56	TD0	I/O	Test terminal
57	CLK	O	2-division frequency clock of XTL1
58	TDIO	I	Test terminal
59	XRST	I	Chip select negative logic signal
60	TA3	I	} Test terminal
61	TA2	I	
62	TA1	I	
63	GND	—	GND
64	XWR	I	CPU register write strobe negative logic signal
65	XRD	I	CPU register read strobe negative logic signal
66	XCS	I	Chip select negative logic signal from CPU
67	INT	O	Interruption request signal to CPU
68	A0	I	CPU address signal
69	D7	I	CPU data bus (MSB)
70	D6	I	CPU data bus

Pin No.	Pin Name	I/O	Description
71	D5	I	CPU data bus
72	GND	—	GND
73	VDD	—	Power supply terminal
74	D4	I	CPU data bus
75	D3	I	
76	D2	I	
77	D1	I	
78	D0	I	CPU data bus (LSB)
79	TA0	I	Test terminal
80	N.C	—	

• IC701 (SED1336F0A)

Pinn No.	Pin Name	I/O	Description
1	VA5	O	VRAM address bus
2	VA4	O	
3	VA3	O	
4	VA2	O	
5	VA1	O	
6	VA0	O	
7	VWR	O	VRAM write signal
8	VCE	O	VRAM chip enable
9	VRD	O	VRAM read signal
10	RES	I	Reset input
11	SYNC		
12	CLO	O	Oscillation clock monitor terminal
13	RD	I	Read signal/E clock
14	WR	I	Write signal/R/W signal
15	NT/PL	I	NTSC/PAL selection
16	SEL1	I	80 and 60 system bus selection
17	XG	I	Oscillation terminal
18	XD	O	Oscillation terminal
19	CS	I	Chip select signal
20	A0	I	Distinguish signal for data bus signal
21	VDD		Power (Vcc)
22	D0	I/O	System data bus
23	D1	I/O	
24	D2	I/O	
25	D3	I/O	
26	D4	I/O	
27	D5	I/O	
28	D6	I/O	
29	D7	I/O	
30	XD3	O	X driver data bus
31	XD2	O	
32	XD1	O	
33	XD0	O	
34	VSD	O	Video data output
35	XSCL	O	X driver shift clock
36	VSS		Power supply (GND)
37	LP	O	Latch pulse
38	WF	O	Liquid alternating signal
39	YDIS	O	LCD power down output
40	YD	O	Scan start pulse
41	SNC	O	TV synchronizing signal
42	VD7	I/O	VRAM data bus
43	VD6	I/O	
44	VD5	I/O	
45	VD4	I/O	
46	VD3	I/O	
47	VD2	I/O	
48	VD1	I/O	
49	VD0	I/O	
50	VA15	O	VRAM address bus
51	VA14	O	
52	VA13	O	
53	VA12	O	
54	VA11	O	
55	VA10	O	
56	VA9	O	
57	VA8	O	
58	VA7	O	
59	VA6	O	
60	NC		

• IC401(RF5C184)

IC401 consists of the three SWR systems. Power supply voltage for CPU, charging battery and CPU is generated with the three types of power supply (1. AC adaptor, 2. Battery and 3. Charged battery).

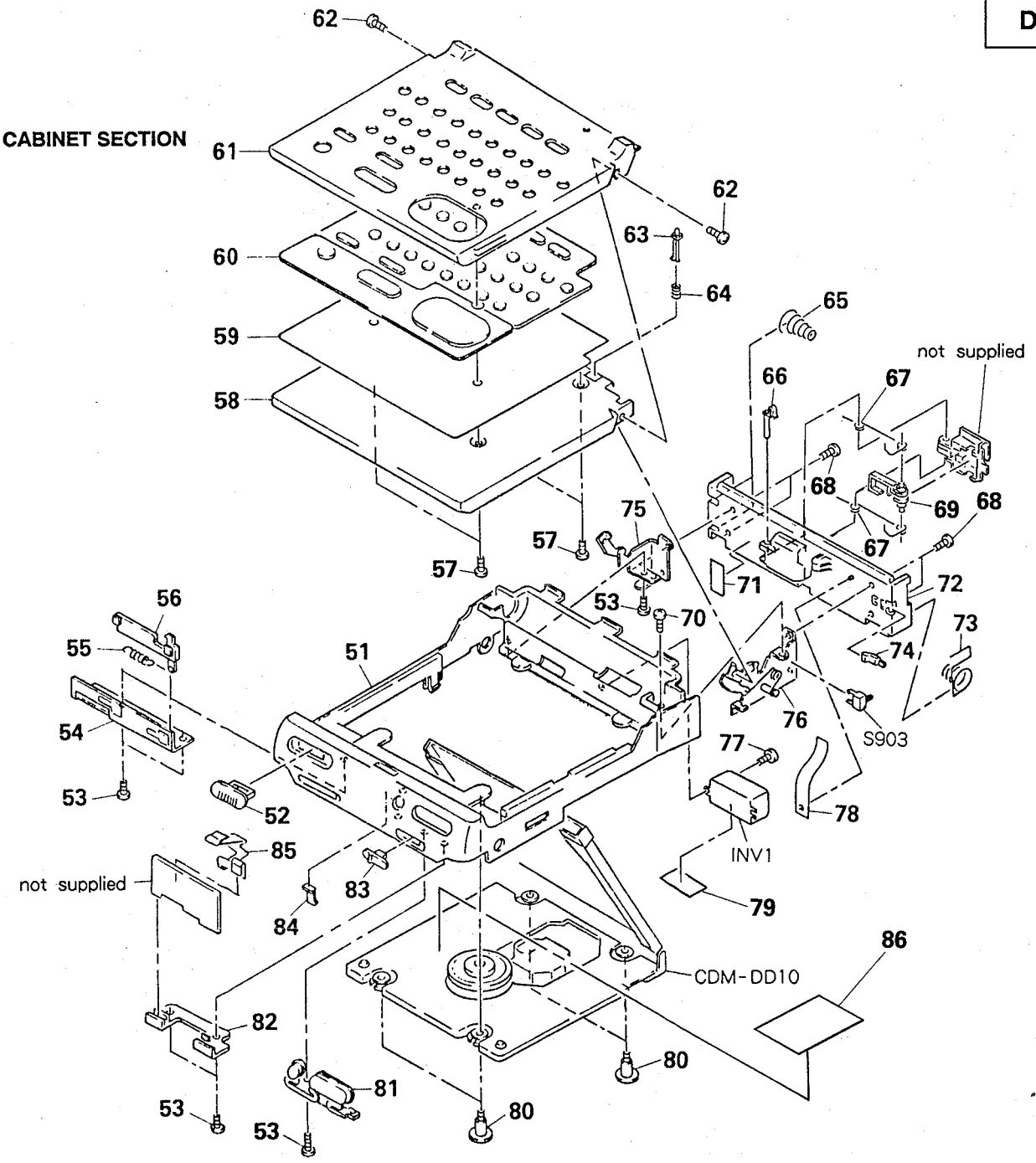
Pin No.	Pin Name	I/O	Description
1	VFIN	I	VF converter input. Battery potential is detected when the audio and battery system operates.
2	* VFOUT	OD	VF converter output. The potential (1.8 to 3.3 V) detected with VFIN is converted to the frequency and output.
3	SYNC CLK	I	Synchronizing clock. External clock input when the SWR operation for audio and battery systems is synchronized externally.(176 kHz)
4	CR	I	Set the oscillation frequency of audio and battery system and the duty MAX of audio system with external CR.
5	AUD DRV	O	Audio system SWR drive output
6	GND		AUD DRV power ground
7	ERR OUT1	O	Differential amplifier output
8	ERR IN1	I	Differential amplifier input
9	PCON	I	Power save select. Audio system power supply voltage oscillation circuit stops when H.
10	* ALM OUT	OD	Alarm outputs when the AC adaptor output exceed a limit or TEMP SENSE input is abnormal.
11	CHG CON	I	Battery control input. Battery is rechargeable when H. Alarm reset when L is changed to H.
12	* CHG DPY	OD	Charging display. Output when "CHGCON" is "H" and a normal charging current is detected.
13	TEMPSENS	I	Temperature detection input.(Abnormal high temperature detection)
14	ERR IN2	I	Differential amplifier input
15	ERR OUT2	O	Differential amplifier output
16	CHG CUR −	I	Charging current detection ⊖ input. Current detection 0.5 is connected externally.
17	CHG CUR +	I	Charging current detection ⊕ input
18	CH GDRV	OD	Charging system SWR drive output
19	GND		Power ground which the source power current is supplied to the charging system or the CPU power system drive. This is connected to the VSS terminal via the internal resister.
20	VDD DRV	OD	VDD system SWR drive. SWR is driven for the self bias or the CPU power supply with the offtime control PWM.
21	VDD (IC)	I	Changes to ICK board potential by inputting the current voltage (4 V) gained with SWR of VDD DRV.
22	CPU VDD	O	CPU power supply output
23	* CPU RST	OD	CPU reset. Outputs when CPU VDD output voltage is less than the specification.
24	VSS		Logic ground in IC

OD : Open drain output

* : Used when pulling up to "H" level.

SWR : Switching regulator

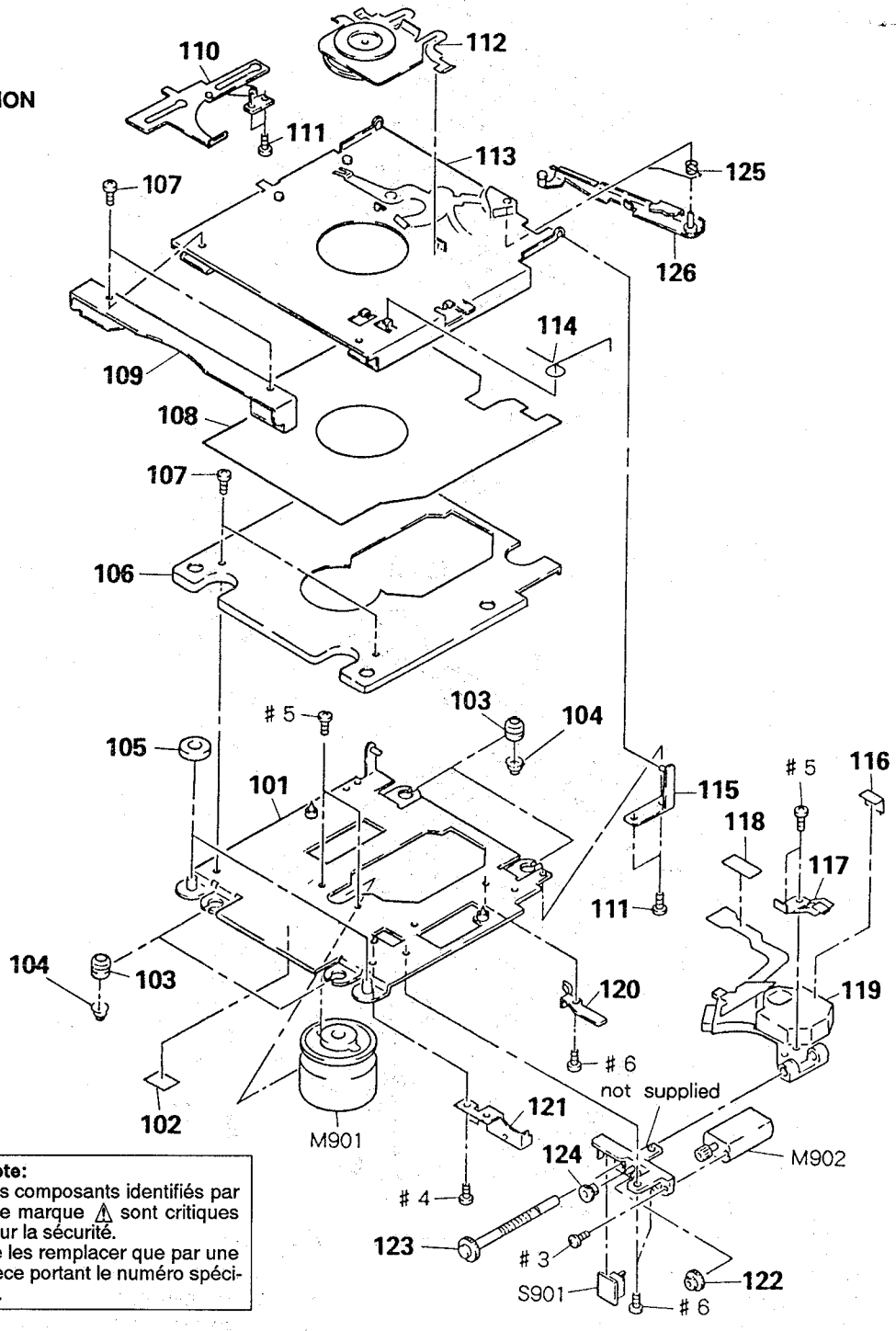
6-2. CABINET SECTION



Ref. No.	Part No.	Description	Remarks
51	X-4942-762-1	CABINET ASSY	
52	4-948-860-01	KNOB (OPEN)	
53	3-318-203-71	SCREW (B1.7X5), TAPPING	
54	4-948-852-01	BRACKET, LOCK CLAW	
55	2-291-510-00	SPRING, TENSION	
56	4-948-859-01	CLAW, LOCK	
57	3-895-823-11	SCREW (B1.4X3), TAPPING	
58	X-4942-125-1	LID ASSY, CD	
59	1-466-616-11	KEY BOARD UNIT	
60	1-572-915-11	SWITCH, RUBBER KEY	
61	4-948-863-11	COVER, CD LID	
62	3-704-197-22	SCREW (M1.4X2.5), LOCKING	
63	4-948-819-01	PIN, LID OPEN	
64	4-948-837-01	SPRING, COMPRESSION	
65	4-948-825-01	TERMINAL (B), BATTERY	
66	4-948-828-03	SHAFT (B), TERMINAL	
67	4-948-826-01	TERMINAL, BP	
68	3-703-816-72	SCREW (M1.4X3.0), SPECIAL HEAD	
69	4-948-827-01	SHAFT (A), TERMINAL	

Ref. No.	Part No.	Description	Remarks
70	3-703-816-12	SCREW (M1.4X4.0), SPECIAL HEAD	
* 71	3-561-902-11	CLOTH, RETAINING, CASSETTE	
72	X-4942-186-7	BATTERY (BASE) ASSY	
73	4-948-824-01	TERMINAL (A), BATTERY	
74	4-948-839-02	PLATE, BATTERY SW	
75	X-4942-129-1	PLATE (B) ASSY, SWITCHING	
76	X-4942-128-1	PLATE (A) ASSY, SWITCHING	
77	3-318-203-62	SCREW (B1.7X4), TAPPING	
78	9-911-816-01	RIBBON, BATTERY	
79	3-831-441-XX	SPACER, KNOB	
80	4-948-817-01	SCREW, INSULATOR	
81	4-948-861-01	BUTTON (POWER)	
82	4-948-854-01	RETAINER, CONTROL PC BOARD	
83	4-948-853-01	KNOB (HOLD)	
84	4-948-833-01	SLIDE, DETECTION SWITCH	
85	1-641-730-11	PC BOARD, POWER BUTTON FLIXBLE	
86	4-953-077-01	LABEL, ELECTRONIC BOOK INSERT	
INV1	1-466-617-11	INVERTER UNIT	
S903	1-571-099-11	SWITCH	

6-3. MECHANISM SECTION (CDM-DD10)



Note:	Note:
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

Ref. No.	Part No.	Description	Remarks
101	X-4942-124-1	CHASSIS ASSY, MD	
102	3-831-441-11	CUSHION (B)	
103	4-948-816-01	INSULATOR	
104	4-948-820-01	SPRING, INSULATING	
* 105	1-452-570-11	MAGNET	
106	4-948-813-01	COVER, MD	
107	3-703-816-02	SCREW (M1.4X2.0), SPECIAL HEAD	
108	4-948-808-01	SHEET, HOLDER	
109	4-938-993-01	GUIDE, CADDY	
110	X-4942-122-1	SLIDE ASSY, SWITCHING	
111	3-366-048-01	SCREW (+P1.7X2.0) (NK)	
112	A-3253-073-A	CHUCKING BLOCK ASSY	
113	X-4942-123-1	HOLDER ASSY, CADDIE	
114	4-948-798-01	SPRING, P	
115	X-4942-121-1	PLATE(B)ASSY,SWITCHING, CADDIE	

Ref. No.	Part No.	Description	Remarks
116	4-948-810-01	SHEET, 2 SHAFT	
117	4-938-979-01	RACK (OUTSERT)	
118	4-948-790-01	COVER, MD FLEXIBLE	
⚠119	8-848-240-11	DEVICE, OPTICAL KSS-301A	
* 120	4-948-809-01	RETAINER, FLEXIBLE	
* 121	4-948-791-01	SPRING, RETAINER	
122	4-948-793-01	GEAR (B)	
123	X-4942-120-1	SCREW ASSY, FEED	
124	4-948-794-01	GEAR (C)	
125	4-948-806-01	SPRING, OPEN	
126	X-4942-119-3	LEVER ASSY, OPEN	
M901	A-3133-418-A	MOTOR ASSY, CLV	
M902	A-3253-071-A	MOTOR ASSY, SLED	
S901	1-570-953-11	SWITCH, PUSH (1 KEY)	

SECTION 7
ELECTRICAL PARTS LIST

IF MAIN

NOTE:

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spéci-fie.

When indicating parts by reference number, please include the board name.

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- −XX, −X mean standardized parts, so they may have some difference from the original one.
- RESISTORS
  All resistors are in ohms.
  METAL : metal-film resistor
  METAL OXIDE : Metal Oxide-film resistor
  F : nonflammable
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- SEMICONDUCTORS
  In each case, u : μ, for example :
  uA... : μA... , uPA... , μPA... , uPB... , μPB... , uPC... , μPC... , uPD..., μPD...
- CAPACITORS :
  uF : μF
- COILS
  uH : μH

Ref. No.	Part No.	Description	Remarks
*	1-641-731-11	IF BOARD	
		********	
		< CONNECTOR >	
CN805	1-566-521-11	CONNECTOR, FPC (ZIF) 5P	
		< SWITCH >	
S801	1-571-737-21	SWITCH, KEY BBOARD (REFLOW) (POWER ON)	
S802	1-571-737-21	SWITCH, KEY BBOARD (REFLOW) (OFF)	
**********			
	A-3275-422-A	MAIN BOARD, COMPLETE	
		**********	
		< CAPACITOR >	
C101	1-135-157-21	TANTALUM CHIP 10uF 20% 6.3V	
C102	1-164-172-11	CERAMIC CHIP 0.0056uF 5% 25V	
C103	1-162-966-11	CERAMIC CHIP 0.0022uF 10% 50V	
C104	1-162-956-11	CERAMIC CHIP 180PF 5% 50V	
C105	1-126-206-11	ELECT CHIP 100uF 20% 6.3V	
C106	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C201	1-135-157-21	TANTALUM CHIP 10uF 20% 6.3V	
C202	1-164-172-11	CERAMIC CHIP 0.0056uF 5% 25V	
C203	1-162-966-11	CERAMIC CHIP 0.0022uF 10% 50V	
C204	1-162-956-11	CERAMIC CHIP 180PF 5% 50V	
C205	1-126-206-11	ELECT CHIP 100uF 20% 6.3V	
C206	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C301	1-135-245-11	TANTAL. CHIP 22uF 20% 6.3V	
C302	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C303	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C304	1-135-254-11	TANTAL. CHIP 47uF 20% 4V	
C305	1-135-246-11	TANTAL. CHIP 33uF 20% 6.3V	
C306	1-164-357-11	CERAMIC CHIP 1000PF 5% 50V	
C307	1-164-357-11	CERAMIC CHIP 1000PF 5% 50V	
C308	1-164-357-11	CERAMIC CHIP 1000PF 5% 50V	
C309	1-135-246-11	TANTAL. CHIP 33uF 20% 6.3V	
C310	1-164-005-11	CERAMIC CHIP 0.47uF 25V	
C311	1-163-038-00	CERAMIC CHIP 0.1uF 25V	
C401	1-135-245-11	TANTAL. CHIP 22uF 20% 6.3V	
C403	1-164-004-11	CERAMIC CHIP 0.1uF 10% 25V	
C404	1-135-246-11	TANTAL. CHIP 33uF 20% 6.3V	
C405	1-135-246-11	TANTAL. CHIP 33uF 20% 6.3V	
C407	1-164-315-11	CERAMIC CHIP 470PF 5% 50V	
C408	1-162-966-11	CERAMIC CHIP 0.0022uF 10% 50V	
C409	1-135-328-11	TANTAL. CHIP 4.7uF 20% 16V	
C410	1-135-328-11	TANTAL. CHIP 4.7uF 20% 16V	
C411	1-164-505-11	CERAMIC CHIP 2.2uF 16V	
C412	1-135-246-11	TANTAL. CHIP 33uF 20% 6.3V	
C413	1-135-246-11	TANTAL. CHIP 33uF 20% 6.3V	
C414	1-135-237-11	TANTAL. CHIP 2.2uF 20% 6.3V	
C415	1-124-584-00	ELECT 100uF 20% 10V	
C416	1-162-953-11	CERAMIC CHIP 100PF 5% 50V	
C417	1-135-245-11	TANTAL. CHIP 22uF 20% 6.3V	
C418	1-135-265-21	TANTAL. CHIP 33uF 10% 10V	
C419	1-164-676-11	CERAMIC CHIP 2200PF 5% 16V	
C420	1-164-222-11	CERAMIC CHIP 0.22uF 25V	
C421	1-164-222-11	CERAMIC CHIP 0.22uF 25V	
C422	1-135-237-11	TANTAL. CHIP 2.2uF 20% 6.3V	
C423	1-135-261-21	TANTAL. CHIP 4.7uF 10% 10V	
C451	1-135-245-11	TANTAL. CHIP 22uF 20% 6.3V	

MAIN

Ref. No.	Part No.	Description			Remarks
C453	1-135-245-11	TANTAL. CHIP 22uF	20%	6.3V	
C454	1-135-245-11	TANTAL. CHIP 22uF	20%	6.3V	
C455	1-164-357-11	CERAMIC CHIP 1000PF	5%	50V	
C501	1-135-243-11	TANTAL. CHIP 10uF	20%	6.3V	
C502	1-135-253-11	TANTAL. CHIP 33uF	20%	4V	
C503	1-162-942-11	CERAMIC CHIP 12PF	5%	50V	
C504	1-162-970-11	CERAMIC CHIP 0.01uF	10%	25V	
C505	1-164-677-11	CERAMIC CHIP 0.033uF	10%	16V	
C506	1-124-584-00	ELECT 100uF	20%	10V	
C507	1-162-970-11	CERAMIC CHIP 0.01uF	10%	25V	
C508	1-162-970-11	CERAMIC CHIP 0.01uF	10%	25V	
C509	1-164-004-11	CERAMIC CHIP 0.1uF	10%	25V	
C510	1-162-979-11	CERAMIC CHIP 0.0027uF	10%	50V	
C511	1-164-505-11	CERAMIC CHIP 2.2uF		16V	
C512	1-162-949-11	CERAMIC CHIP 47PF	5%	50V	
C513	1-164-156-11	CERAMIC CHIP 0.1uF		25V	
C514	1-164-227-11	CERAMIC CHIP 0.022uF	10%	25V	
C515	1-164-227-11	CERAMIC CHIP 0.022uF	10%	25V	
C516	1-162-964-11	CERAMIC CHIP 0.001uF	10%	50V	
C517	1-164-156-11	CERAMIC CHIP 0.1uF		25V	
C518	1-164-227-11	CERAMIC CHIP 0.022uF	10%	25V	
C519	1-162-953-11	CERAMIC CHIP 100PF	5%	50V	
C520	1-164-357-11	CERAMIC CHIP 1000PF	5%	50V	
C521	1-164-674-11	CERAMIC CHIP 1800PF	5%	16V	
C522	1-135-229-11	TANTAL. CHIP 6.8uF	20%	6.3V	
C523	1-162-953-11	CERAMIC CHIP 100PF	5%	50V	
C524	1-163-809-11	CERAMIC CHIP 0.047uF	10%	25V	
C525	1-164-357-11	CERAMIC CHIP 1000PF	5%	50V	
C526	1-135-229-11	TANTAL. CHIP 6.8uF	20%	6.3V	
C527	1-164-676-11	CERAMIC CHIP 2200PF	5%	16V	
C528	1-135-245-11	TANTAL. CHIP 22uF	20%	6.3V	
C529	1-164-222-11	CERAMIC CHIP 0.22uF		25V	
C530	1-162-956-11	CERAMIC CHIP 180PF	5%	50V	
C531	1-135-091-00	TANTALUM CHIP 1uF	20%	16V	
C532	1-135-232-11	TANTAL. CHIP 10uF	20%	16V	
C533	1-164-222-11	CERAMIC CHIP 0.22uF		25V	
C534	1-163-986-00	CERAMIC CHIP 0.027uF	10%	25V	
C535	1-164-346-11	CERAMIC CHIP 1uF		16V	
C536	1-164-362-11	CERAMIC CHIP 470PF	5%	50V	
C537	1-135-202-21	TANTAL. CHIP 22uF	20%	4V	
C538	1-164-346-11	CERAMIC CHIP 1uF		16V	
C539	1-164-357-11	CERAMIC CHIP 1000PF	5%	50V	
C540	1-164-346-11	CERAMIC CHIP 1uF		16V	
C541	1-135-091-00	TANTALUM CHIP 1uF	20%	16V	
C542	1-135-232-11	TANTAL. CHIP 10uF	20%	16V	
C543	1-164-156-11	CERAMIC CHIP 0.1uF		25V	
C545	1-164-505-11	CERAMIC CHIP 2.2uF		16V	
C546	1-135-210-11	TANTALUM CHIP 4.7uF	20%	10V	
C547	1-164-156-11	CERAMIC CHIP 0.1uF		25V	
C548	1-135-239-11	TANTAL. CHIP 10uF	20%	10V	

Ref. No.	Part No.	Description			Remarks
C549	1-164-676-11	CERAMIC CHIP 2200PF	5%	16V	
C550	1-135-245-11	TANTAL. CHIP 22uF	20%	6.3V	
C551	1-135-253-11	TANTAL. CHIP 33uF	20%	4V	
C552	1-135-253-11	TANTAL. CHIP 33uF	20%	4V	
C553	1-162-953-11	CERAMIC CHIP 100PF	5%	50V	
C554	1-162-932-11	CERAMIC CHIP 2PF	0.25PF	50V	
C555	1-162-964-11	CERAMIC CHIP 0.001uF	10%	50V	
C601	1-164-361-11	CERAMIC CHIP 0.047uF		16V	
C602	1-162-965-11	CERAMIC CHIP 0.0015uF	10%	50V	
C606	1-164-346-11	CERAMIC CHIP 1uF		16V	
C703	1-164-346-11	CERAMIC CHIP 1uF		16V	
C704	1-164-346-11	CERAMIC CHIP 1uF		16V	
C705	1-164-505-11	CERAMIC CHIP 2.2uF		16V	
C706	1-164-505-11	CERAMIC CHIP 2.2uF		16V	
C707	1-164-505-11	CERAMIC CHIP 2.2uF		16V	
C708	1-164-505-11	CERAMIC CHIP 2.2uF		16V	
C709	1-164-505-11	CERAMIC CHIP 2.2uF		16V	
C710	1-164-505-11	CERAMIC CHIP 2.2uF		16V	
C711	1-124-576-11	ELECT 220uF	20%	4V	
C712	1-162-953-11	CERAMIC CHIP 100PF	5%	50V	
C713	1-162-953-11	CERAMIC CHIP 100PF	5%	50V	
C714	1-162-953-11	CERAMIC CHIP 100PF	5%	50V	
C716	1-135-253-11	TANTAL. CHIP 33uF	20%	4V	
C717	1-135-243-11	TANTAL. CHIP 10uF	20%	6.3V	
C718	1-164-357-11	CERAMIC CHIP 1000PF	5%	50V	
C801	1-162-919-11	CERAMIC CHIP 22PF	5%	50V	
C802	1-162-919-11	CERAMIC CHIP 22PF	5%	50V	
C803	1-135-237-11	TANTAL. CHIP 2.2uF	20%	6.3V	
C804	1-162-953-11	CERAMIC CHIP 100PF	5%	50V	
C805	1-162-953-11	CERAMIC CHIP 100PF	5%	50V	
C806	1-164-346-11	CERAMIC CHIP 1uF		16V	
C807	1-164-346-11	CERAMIC CHIP 1uF		16V	
C808	1-164-346-11	CERAMIC CHIP 1uF		16V	
C809	1-162-953-11	CERAMIC CHIP 100PF	5%	50V	
C810	1-164-346-11	CERAMIC CHIP 1uF		16V	
C812	1-164-346-11	CERAMIC CHIP 1uF		16V	
C813	1-162-953-11	CERAMIC CHIP 100PF	5%	50V	
C814	1-164-357-11	CERAMIC CHIP 1000PF	5%	50V	
C815	1-164-346-11	CERAMIC CHIP 1uF		16V	
C816	1-164-346-11	CERAMIC CHIP 1uF		16V	

< CONNECTOR >

CN501	1-566-528-21	CONNECTOR, FPC (ZIF) 12P
CN502	1-566-526-11	CONNECTOR, FPC (ZIF) 10P
CN701	1-566-536-11	CONNECTOR, FPC (ZIF) 20P
CN801	1-569-949-11	CONNECTOR, FPC 13P
CN802	1-566-521-11	CONNECTOR, FPC (ZIF) 5P

Ref. No.	Part No.	Description	Remarks
		< DIODE >	
D301	8-719-938-72	DIODE SB01-05CP	
D302	8-719-404-35	DIODE MA141WK	
D401	8-719-800-76	DIODE 1SS226	
D402	8-719-404-35	DIODE MA141WK	
D403	8-719-938-78	DIODE SB10-05PCP	
D404	8-719-938-75	DIODE SB05-05CP	
D405	8-719-938-75	DIODE SB05-05CP	
D406	8-719-938-75	DIODE SB05-05CP	
D407	8-719-975-46	DIODE RB471E	
D408	8-719-975-46	DIODE RB471E	
D409	8-719-404-35	DIODE MA141WK	
D410	8-719-404-35	DIODE MA141WK	
D411	8-719-938-72	DIODE SB01-05CP	
D412	8-719-977-12	DIODE DTZ6.8B	
D413	8-719-404-35	DIODE MA141WK	
D501	8-719-989-73	DIODE SB007T03C	
D502	8-719-938-72	DIODE SB01-05CP	
D503	8-719-938-75	DIODE SB05-05CP	
D505	8-719-400-18	DIODE MA152WK	
D601	8-719-404-35	DIODE MA141WK	
D701	8-719-404-35	DIODE MA141WK	
D703	8-719-404-35	DIODE MA141WK	
D801	8-719-421-21	DIODE MA8120-L	
D802	8-719-421-21	DIODE MA8120-L	
D803	8-719-421-21	DIODE MA8120-L	
D804	8-719-421-21	DIODE MA8120-L	
D805	8-719-421-21	DIODE MA8120-L	
D806	8-719-820-05	DIODE 1SS181	
		< IC >	
IC301	8-759-148-30	IC uPD6376GS	
IC302	8-759-604-78	IC M5216FP	
IC401	8-759-045-09	IC RF5C184	
IC402	8-759-710-79	IC NJM2107F	
IC501	8-752-033-55	IC CXA1271Q	
IC502	8-752-033-98	IC CXA1272R	
IC503	8-759-030-17	IC MPC1715FU	
IC504	8-759-710-55	IC NJM2100M	
IC505	8-759-031-84	IC SC7S04F	
IC601	8-752-337-26	IC CXD2500AQ	
IC602	8-752-351-90	IC CXD1196AR	
IC603	8-752-343-47	IC CXK58257ATM-12LB	
IC604	8-759-031-84	IC SC7S04F	
IC605	8-759-234-20	IC TC7S08F	
IC701	8-759-045-10	IC SED1336F0A	

Ref. No.	Part No.	Description	Remarks
IC702	8-752-343-47	IC CXK58257ATM-12LB	
IC703	8-759-998-96	IC LM324D	
IC801	8-759-140-93	IC uPD70008AGB-6-3B4	
IC802	8-759-045-07	IC CXD8279R	
IC803	8-759-082-02	IC MB834000B-15PFTN-31F	
IC804	8-752-343-47	IC CXK58257ATM-12LB	
		< JACK >	
J301	1-562-974-11	JACK (PHONES)	
J401	1-568-907-21	JACK, EXTERNAL POWER (DC IN 6V)	
J701	1-573-889-11	JACK (VIDEO OUT)	
		< COIL >	
L101	1-410-997-31	INDUCTOR CHIP 2.2uH	
L201	1-410-997-31	INDUCTOR CHIP 2.2uH	
L301	1-410-997-31	INDUCTOR CHIP 2.2uH	
L401	1-460-193-11	COIL (WITH CORE)	
L402	1-412-032-11	INDUCTOR CHIP 100uH	
L403	1-412-029-11	INDUCTOR CHIP 10uH	
L404	1-412-029-11	INDUCTOR CHIP 10uH	
L405	1-412-039-51	INDUCTOR CHIP 100uH	
L406	1-414-036-11	INDUCTOR 2.2uH	
L450	1-412-029-11	INDUCTOR CHIP 10uH	
L451	1-414-037-11	INDUCTOR 10uH	
L452	1-414-037-11	INDUCTOR 10uH	
L453	1-414-036-11	INDUCTOR 2.2uH	
L501	1-412-039-51	INDUCTOR CHIP 100uH	
L502	1-412-032-11	INDUCTOR CHIP 100uH	
L503	1-412-039-51	INDUCTOR CHIP 100uH	
L504	1-412-039-51	INDUCTOR CHIP 100uH	
L505	1-412-039-51	INDUCTOR CHIP 100uH	
L506	1-412-031-11	INDUCTOR CHIP 47uH	
L701	1-414-036-11	INDUCTOR 2.2uH	
L702	1-410-997-31	INDUCTOR CHIP 2.2uH	
L704	1-410-997-31	INDUCTOR CHIP 2.2uH	
L801	1-410-997-31	INDUCTOR CHIP 2.2uH	
		< TRANSISTOR >	
Q101	8-729-425-18	TRANSISTOR XN4504	
Q201	8-729-425-18	TRANSISTOR XN4504	
Q301	8-729-159-65	TRANSISTOR 2SD596-DV5	
Q302	8-729-810-13	TRANSISTOR 2SA1677	
Q303	8-729-429-50	TRANSISTOR XP4312	
Q304	8-729-427-72	TRANSISTOR XP4501	
Q401	8-729-420-24	TRANSISTOR 2SB1218A-QRS	
Q402	8-729-101-07	TRANSISTOR 2SB798-DL	
Q403	8-729-012-39	TRANSISTOR 2SB1073-Q	
Q404	8-729-101-07	TRANSISTOR 2SB798-DL	

MAIN

Ref. No.	Part No.	Description	Remarks
Q405	8-729-426-25	TRANSISTOR XP1212	
Q406	8-729-012-39	TRANSISTOR 2SB1073-Q	
Q407	8-729-806-75	TRANSISTOR 2SB1120-F	
Q408	8-729-429-50	TRANSISTOR XP4312	
Q409	8-729-101-07	TRANSISTOR 2SB798-DL	
Q410	8-729-429-44	TRANSISTOR XP1501	
Q411	8-729-429-44	TRANSISTOR XP1501	
Q412	8-729-426-25	TRANSISTOR XP1212	
Q413	8-729-402-45	TRANSISTOR UN5212	
Q414	8-729-141-75	TRANSISTOR 2SD596DV345	
Q415	8-729-427-72	TRANSISTOR XP4501	
Q416	8-729-012-78	TRANSISTOR XP2501	
Q417	8-729-429-50	TRANSISTOR XP4312	
Q501	8-729-141-75	TRANSISTOR 2SD596DV345	
Q502	8-729-402-45	TRANSISTOR UN5212	
Q503	8-729-426-25	TRANSISTOR XP1212	
Q505	8-729-810-13	TRANSISTOR 2SA1677	
Q506	8-729-141-75	TRANSISTOR 2SD596DV345	
Q507	8-729-420-24	TRANSISTOR 2SB1218A-QRS	
Q508	8-729-429-50	TRANSISTOR XP4312	
Q509	8-729-422-51	TRANSISTOR UN5110-QRS	
Q510	8-729-420-24	TRANSISTOR 2SB1218A-QRS	
Q511	8-729-402-45	TRANSISTOR UN5212	
Q701	8-729-141-48	TRANSISTOR 2SB624-BV345	
Q702	8-729-141-48	TRANSISTOR 2SB624-BV345	
Q703	8-729-141-48	TRANSISTOR 2SB624-BV345	
Q704	8-729-402-45	TRANSISTOR UN5212	
Q705	8-729-159-65	TRANSISTOR 2SD596-DV5	
Q706	8-729-141-48	TRANSISTOR 2SB624-BV345	
Q707	8-729-427-72	TRANSISTOR XP4501	
Q708	8-729-427-72	TRANSISTOR XP4501	
Q709	8-729-402-45	TRANSISTOR UN5212	
Q801	8-729-402-45	TRANSISTOR UN5212	

< RESISTOR >

R101	1-216-821-11	METAL CHIP	1K	5%	1/16W
R102	1-216-833-11	METAL CHIP	10K	5%	1/16W
R103	1-216-046-00	METAL CHIP	750	5%	1/10W
R104	1-218-294-11	METAL GLAZE	30K	5%	1/16W
R105	1-216-801-11	METAL CHIP	22	5%	1/16W
R106	1-216-818-11	METAL CHIP	560	5%	1/16W
R107	1-216-819-11	METAL CHIP	680	5%	1/16W
R108	1-216-819-11	METAL CHIP	680	5%	1/16W
R201	1-216-821-11	METAL CHIP	1K	5%	1/16W
R202	1-216-833-11	METAL CHIP	10K	5%	1/16W
R203	1-216-046-00	METAL CHIP	750	5%	1/10W
R204	1-218-294-11	METAL GLAZE	30K	5%	1/16W
R205	1-216-801-11	METAL CHIP	22	5%	1/16W
R206	1-216-818-11	METAL CHIP	560	5%	1/16W
R207	1-216-819-11	METAL CHIP	680	5%	1/16W
R208	1-216-819-11	METAL CHIP	680	5%	1/16W
R301	1-216-821-11	METAL CHIP	1K	5%	1/16W
R302	1-216-835-11	METAL CHIP	15K	5%	1/16W
R303	1-216-838-11	METAL CHIP	27K	5%	1/16W
R304	1-216-833-11	METAL CHIP	10K	5%	1/16W
R305	1-216-849-11	METAL CHIP	220K	5%	1/16W
R306	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R401	1-216-830-11	METAL CHIP	5.6K	5%	1/16W
R402	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R403	1-216-844-11	METAL CHIP	82K	5%	1/16W
R404	1-217-671-11	METAL CHIP	1	5%	1/10W
R405	1-217-671-11	METAL CHIP	1	5%	1/10W
R406	1-216-817-11	METAL CHIP	470	5%	1/16W
R407	1-216-818-11	METAL CHIP	560	5%	1/16W
R408	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R409	1-216-834-11	METAL CHIP	12K	5%	1/16W
R410	1-216-817-11	METAL CHIP	470	5%	1/16W
R411	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R412	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R413	1-216-820-11	METAL CHIP	820	5%	1/16W
R414	1-216-837-11	METAL CHIP	22K	5%	1/16W
R415	1-216-817-11	METAL CHIP	470	5%	1/16W
R416	1-218-707-11	METAL CHIP	4.3K	0.50%	1/16W
R417	1-218-701-11	METAL CHIP	2.4K	0.50%	1/16W
R418	1-216-847-11	METAL CHIP	150K	5%	1/16W
R419	1-216-845-11	METAL CHIP	100K	5%	1/16W
R421	1-216-845-11	METAL CHIP	100K	5%	1/16W
R422	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R423	1-216-863-11	METAL GLAZE	3.3M	5%	1/16W
R424	1-216-817-11	METAL CHIP	470	5%	1/16W
R426	1-216-833-11	METAL CHIP	10K	5%	1/16W
R427	1-216-833-11	METAL CHIP	10K	5%	1/16W
R428	1-218-292-11	METAL GLAZE	20K	5%	1/16W
R429	1-216-835-11	METAL CHIP	15K	5%	1/16W
R430	1-218-723-11	METAL CHIP	20K	0.50%	1/16W
R431	1-218-748-11	METAL CHIP	220K	0.50%	1/16W
R432	1-216-833-11	METAL CHIP	10K	5%	1/16W
R433	1-216-833-11	METAL CHIP	10K	5%	1/16W
R434	1-216-833-11	METAL CHIP	10K	5%	1/16W
R435	1-216-817-11	METAL CHIP	470	5%	1/16W
R436	1-216-823-11	METAL CHIP	1.5K	5%	1/16W
R437	1-216-836-11	METAL CHIP	18K	5%	1/16W
R438	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R439	1-216-837-11	METAL CHIP	22K	5%	1/16W
R440	1-216-864-11	METAL CHIP	0	5%	1/16W
R441	1-216-842-11	METAL CHIP	56K	5%	1/16W
R442	1-216-833-11	METAL CHIP	10K	5%	1/16W
R443	1-216-833-11	METAL CHIP	10K	5%	1/16W
R444	1-216-833-11	METAL CHIP	10K	5%	1/16W
R445	1-216-839-11	METAL CHIP	33K	5%	1/16W

Ref. No.	Part No.	Description				Remarks
R446	1-216-863-11	METAL GLAZE	3.3M	5%	1/16W	
R447	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R448	1-216-814-11	METAL CHIP	270	5%	1/16W	
R449	1-216-809-11	METAL CHIP	100	5%	1/16W	
R450	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R451	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R452	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R453	1-218-747-11	METAL CHIP	200K	0.50%	1/16W	
R454	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R455	1-216-842-11	METAL CHIP	56K	5%	1/16W	
R456	1-218-716-11	METAL CHIP	10K	0.50%	1/16W	
R457	1-218-716-11	METAL CHIP	10K	0.50%	1/16W	
R458	1-218-716-11	METAL CHIP	10K	0.50%	1/16W	
R459	1-216-837-11	METAL CHIP	22K	5%	1/16W	
R501	1-218-286-11	METAL GLAZE	91	5%	1/16W	
R502	1-218-740-11	METAL CHIP	100K	0.50%	1/16W	
R503	1-218-740-11	METAL CHIP	100K	0.50%	1/16W	
R504	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R505	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R506	1-216-835-11	METAL CHIP	15K	5%	1/16W	
R507	1-216-831-11	METAL CHIP	6.8K	5%	1/16W	
R508	1-216-842-11	METAL CHIP	56K	5%	1/16W	
R509	1-216-842-11	METAL CHIP	56K	5%	1/16W	
R510	1-216-831-11	METAL CHIP	6.8K	5%	1/16W	
R511	1-216-842-11	METAL CHIP	56K	5%	1/16W	
R512	1-216-837-11	METAL CHIP	22K	5%	1/16W	
R513	1-216-857-11	METAL CHIP	1M	5%	1/16W	
R514	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R515	1-216-843-11	METAL CHIP	68K	5%	1/16W	
R516	1-216-849-11	METAL CHIP	220K	5%	1/16W	
R517	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R518	1-218-745-11	METAL CHIP	160K	0.50%	1/16W	
R519	1-216-844-11	METAL CHIP	82K	5%	1/16W	
R520	1-218-745-11	METAL CHIP	160K	0.50%	1/16W	
R521	1-216-848-11	METAL CHIP	180K	5%	1/16W	
R522	1-216-847-11	METAL CHIP	150K	5%	1/16W	
R523	1-216-848-11	METAL CHIP	180K	5%	1/16W	
R524	1-216-844-11	METAL CHIP	82K	5%	1/16W	
R525	1-216-819-11	METAL CHIP	680	5%	1/16W	
R526	1-216-844-11	METAL CHIP	82K	5%	1/16W	
R527	1-216-837-11	METAL CHIP	22K	5%	1/16W	
R528	1-216-854-11	METAL CHIP	560K	5%	1/16W	
R529	1-216-831-11	METAL CHIP	6.8K	5%	1/16W	
R530	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R531	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R532	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R533	1-216-840-11	METAL CHIP	39K	5%	1/16W	
R534	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	
R535	1-216-857-11	METAL CHIP	1M	5%	1/16W	
R536	1-216-827-11	METAL CHIP	3.3K	5%	1/16W	

Ref. No.	Part No.	Description				Remarks
R537	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	
R538	1-216-817-11	METAL CHIP	470	5%	1/16W	
R539	1-216-839-11	METAL CHIP	33K	5%	1/16W	
R540	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R541	1-216-846-11	METAL CHIP	120K	5%	1/16W	
R542	1-216-842-11	METAL CHIP	56K	5%	1/16W	
R543	1-216-837-11	METAL CHIP	22K	5%	1/16W	
R544	1-216-801-11	METAL CHIP	22	5%	1/16W	
R545	1-216-819-11	METAL CHIP	680	5%	1/16W	
R546	1-216-817-11	METAL CHIP	470	5%	1/16W	
R547	1-216-837-11	METAL CHIP	22K	5%	1/16W	
R549	1-216-850-11	METAL CHIP	270K	5%	1/16W	
R550	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R551	1-216-801-11	METAL CHIP	22	5%	1/16W	
R552	1-216-817-11	METAL CHIP	470	5%	1/16W	
R553	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	
R554	1-216-863-11	METAL GLAZE	3.3M	5%	1/16W	
R555	1-216-851-11	METAL CHIP	330K	5%	1/16W	
R556	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R557	1-216-857-11	METAL CHIP	1M	5%	1/16W	
R558	1-218-704-11	METAL CHIP	3.3K	0.50%	1/16W	
R559	1-216-838-11	METAL CHIP	27K	5%	1/16W	
R560	1-216-836-11	METAL CHIP	18K	5%	1/16W	
R561	1-218-448-11	METAL GLAZE	430K	5%	1/16W	
R562	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R563	1-216-834-11	METAL CHIP	12K	5%	1/16W	
R601	1-218-293-11	METAL GLAZE	24K	5%	1/16W	
R602	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R603	1-216-827-11	METAL CHIP	3.3K	5%	1/16W	
R604	1-216-827-11	METAL CHIP	3.3K	5%	1/16W	
R605	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R606	1-216-818-11	METAL CHIP	560	5%	1/16W	
R607	1-216-818-11	METAL CHIP	560	5%	1/16W	
R608	1-216-818-11	METAL CHIP	560	5%	1/16W	
R609	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	
R610	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R611	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R701	1-216-815-11	METAL CHIP	330	5%	1/16W	
R702	1-216-795-11	METAL CHIP	6.8K	0.50%	1/16W	
R703	1-216-795-11	METAL CHIP	6.8K	0.50%	1/16W	
R704	1-216-805-11	METAL CHIP	47	5%	1/16W	
R705	1-216-805-11	METAL CHIP	47	5%	1/16W	
R706	1-218-733-11	METAL CHIP	51K	0.50%	1/16W	
R707	1-216-795-11	METAL CHIP	6.8K	0.50%	1/16W	
R708	1-216-795-11	METAL CHIP	6.8K	0.50%	1/16W	
R709	1-216-805-11	METAL CHIP	47	5%	1/16W	
R710	1-216-805-11	METAL CHIP	47	5%	1/16W	
R711	1-216-805-11	METAL CHIP	47	5%	1/16W	
R712	1-216-846-11	METAL CHIP	120K	5%	1/16W	
R713	1-216-821-11	METAL CHIP	1K	5%	1/16W	

MAIN

Ref. No.	Part No.	Description			Remarks
R714	1-216-821-11	METAL CHIP	1K	5% 1/16W	
R715	1-216-829-11	METAL CHIP	4.7K	5% 1/16W	
R716	1-216-841-11	METAL CHIP	47K	5% 1/16W	
R717	1-216-817-11	METAL CHIP	470	5% 1/16W	
R718	1-216-817-11	METAL CHIP	470	5% 1/16W	
R719	1-216-864-11	METAL CHIP	0	5% 1/16W	
R720	1-218-675-11	METAL CHIP	200	0.50% 1/16W	
R721	1-216-864-11	METAL CHIP	0	5% 1/16W	
R722	1-218-680-11	METAL CHIP	330	0.50% 1/16W	
R723	1-218-716-11	METAL CHIP	10K	0.50% 1/16W	
R724	1-216-023-00	METAL CHIP	82	5% 1/10W	
R725	1-216-853-11	METAL CHIP	470K	5% 1/16W	
R726	1-218-285-11	METAL GLAZE	75	5% 1/16W	
R727	1-216-837-11	METAL CHIP	22K	5% 1/16W	
R728	1-216-817-11	METAL CHIP	470	5% 1/16W	
R729	1-216-023-00	METAL CHIP	82	5% 1/10W	
R731	1-216-829-11	METAL CHIP	4.7K	5% 1/16W	
R732	1-218-294-11	METAL GLAZE	30K	5% 1/16W	
R734	1-216-833-11	METAL CHIP	10K	5% 1/16W	
R799	1-216-049-00	METAL CHIP	1K	5% 1/10W	
R801	1-216-841-11	METAL CHIP	47K	5% 1/16W	
R802	1-216-841-11	METAL CHIP	47K	5% 1/16W	
R803	1-216-841-11	METAL CHIP	47K	5% 1/16W	
R804	1-216-841-11	METAL CHIP	47K	5% 1/16W	
R805	1-216-841-11	METAL CHIP	47K	5% 1/16W	
R806	1-216-841-11	METAL CHIP	47K	5% 1/16W	
R807	1-216-841-11	METAL CHIP	47K	5% 1/16W	
R808	1-216-841-11	METAL CHIP	47K	5% 1/16W	
R809	1-216-839-11	METAL CHIP	33K	5% 1/16W	
R810	1-216-839-11	METAL CHIP	33K	5% 1/16W	
R811	1-216-839-11	METAL CHIP	33K	5% 1/16W	
R812	1-216-839-11	METAL CHIP	33K	5% 1/16W	
R813	1-216-839-11	METAL CHIP	33K	5% 1/16W	
R814	1-216-839-11	METAL CHIP	33K	5% 1/16W	
R815	1-216-839-11	METAL CHIP	33K	5% 1/16W	
R816	1-216-839-11	METAL CHIP	33K	5% 1/16W	
R817	1-216-826-11	METAL CHIP	2.7K	5% 1/16W	
R818	1-216-826-11	METAL CHIP	2.7K	5% 1/16W	
R819	1-216-826-11	METAL CHIP	2.7K	5% 1/16W	
R820	1-216-826-11	METAL CHIP	2.7K	5% 1/16W	
R821	1-216-826-11	METAL CHIP	2.7K	5% 1/16W	
R822	1-216-809-11	METAL CHIP	100	5% 1/16W	
R823	1-216-809-11	METAL CHIP	100	5% 1/16W	
R824	1-216-809-11	METAL CHIP	100	5% 1/16W	
R825	1-216-817-11	METAL CHIP	470	5% 1/16W	
R826	1-216-857-11	METAL CHIP	1M	5% 1/16W	
R827	1-216-829-11	METAL CHIP	4.7K	5% 1/16W	
R828	1-216-829-11	METAL CHIP	4.7K	5% 1/16W	
R829	1-216-829-11	METAL CHIP	4.7K	5% 1/16W	
R830	1-216-829-11	METAL CHIP	4.7K	5% 1/16W	
R831	1-216-829-11	METAL CHIP	4.7K	5% 1/16W	
R832	1-216-829-11	METAL CHIP	4.7K	5% 1/16W	
R833	1-216-112-00	METAL CHIP	430K	0.50% 1/10W	
R834	1-216-829-11	METAL CHIP	4.7K	5% 1/16W	
R835	1-216-825-11	METAL CHIP	2.2K	5% 1/16W	
R836	1-216-829-11	METAL CHIP	4.7K	5% 1/16W	
R837	1-216-025-00	METAL CHIP	100	5% 1/10W	
R838	1-216-049-00	METAL CHIP	1K	5% 1/10W	
R839	1-216-025-00	METAL CHIP	100	5% 1/10W	
R899	1-216-025-00	METAL CHIP	100	5% 1/10W	

< VARIABLE RESISTOR >

RV301	1-241-644-11	RAS, VER, CARBON 10K (VOLUME)
RV401	1-238-990-11	RES, ADJ, METAL GLAZE 4.7K
RV402	1-238-991-11	RES, ADJ, METAL GLAZE 10K
RV403	1-238-990-11	RES, ADJ, METAL GLAZE 4.7K
RV501	1-237-119-11	RES, ADJ, METAL GLAZE 22K
RV502	1-230-873-11	RES, ADJ, METAL 47K
RV503	1-230-873-11	RES, ADJ, METAL 47K
RV504	1-230-869-11	RES, ADJ, METAL 4.7K
RV701	1-241-645-11	RAS, VER, CARBON 50K (CONTRAST)

< SWITCH >

S701	1-571-674-11	SWITCH, SLIDE (PAL/SECAM, NTSC)
S803	1-572-473-11	SWITCH, TACTIL (RESET)
S804	1-572-572-11	SWITCH, MECH DRIVING DETECTION (DOOR OPEN)
S805	1-570-397-11	SWITCH, SLIDE (HOLD)

< VIBRATOR >

X701	1-579-474-11	VIBRATOR, CRYSTAL (6.1050MHz)
X702	1-579-472-11	VIBRATOR, CRYSTAL (6.0625MHz)
X801	1-567-737-11	VIBRATOR, CRYSTAL (8.62MHz)

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MISCELLANEOUS

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59	1-466-616-11	KEY BOARD UNIT
60	1-572-915-11	SWITCH, RUBBER KEY
85	1-641-730-11	PC BOARD, POWER BUTTON FLIXBLE
* 105	1-452-570-11	MAGNET
⚠119	8-848-240-11	DEVICE, OPTICAL KSS-301A
EL801	1-809-436-21	ELEMENT, EL
INV1	1-466-617-11	INVERTER UNIT
LCD801	1-809-520-11	MODULE, LCD
M901	A-3133-418-A	MOTOR ASSY, CLV
M902	A-3253-071-A	MOTOR ASSY, SLED
S901	1-570-953-11	SWITCH, PUSH (1 KEY)
S903	1-571-099-11	SWITCH

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Note:
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Note:
Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

Ref. No.	Part No.	Description	Remarks
		ACCESSORIES & PACKING MATERIALS	
		**********	
	1-528-297-11	BATTERY PACK (BP-2EX) (US, Canadian)	
	1-528-297-21	BATTERY PACK (BP-2EX) (AEP, UK)	
	1-575-875-11	CORD, CONNECTION	
	1-693-116-11	ADAPTOR, AC (AC-C66NA) (AEP, UK)	
	1-693-118-12	ADAPTOR, AC (AC-C66NA) (US, Canadian)	
	3-755-307-11	MANUAL, INSTRUCTION (ENGLISH)	
	3-755-307-41	MANUAL, INSTRUCTION (FRANCH) (AEP, Canadian)	
	3-755-307-51	MANUAL, INSTRUCTION (GERMAN, SPANISH, ITALIAN) (AEP)	
*	4-947-353-01	CUSHION (UPPER)	
*	4-953-409-01	INDIVIDUAL CARTON	
*	4-953-410-01	CUSHION (LOWER)	
	8-953-485-90	HEADPHONE MDR-E551//K SET	

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Ref. No.	Part No.	Description	Remarks
		**********	
		HARDWARE LIST	
		**********	
#1	7-685-105-19	SCREW +P 2X8 TYPE2 NON-SLIT	
#3	7-627-850-28	SCREW, PRECISION +P 1.4X3	
#4	7-627-552-18	SCREW, PRECISION +P 1.7X1.6	
#5	7-627-552-28	SCREW, PRECISION +P 1.7X2	
#6	7-627-852-08	SCREW, PRECISION +P 1.7X2.5	